

The Cactus Explorer

The first free on-line Journal for Cactus and Succulent Enthusiasts



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Cover Picture: *Aeonium lancerottense* in Valle de Malpaso (Lanzarote). Photograph: Marco Cristini.

The No.1 source for on-line information about cacti and succulents is <http://www.cactus-mall.com>
 The best on-line library of cactus and succulent literature can be found at:

<https://www.cactuspro.com/biblio/en:accueil>

Invitation to Contributors

Please consider the Cactus Explorer as the place to publish your articles. We welcome contributions for any of the regular features or a longer article with pictures on any aspect of cacti and succulents. The editorial team is happy to help you with preparing your work. Please send your submissions as plain text in a 'Word' document together with jpeg or tiff images with the maximum resolution available.

A major advantage of this on-line format is the possibility of publishing contributions quickly and any issue is never full! We aim to publish your article quickly and the copy deadline is just a few days before the publication date. There will usually be three issues per year, published when sufficient material is available. Please note that **advertising and links are free** and provided for the benefit of readers. Adverts are placed at the discretion of the editorial team, based on their relevance to the readership.

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INTRODUCTION

Life after the pandemic, and Brexit!

I have really missed my habitual social interaction with other enthusiasts during the nearly two years of restrictions. I must say that I felt uninspired to work on the **Cactus Explorer** so I apologise for the long wait for this edition. I am feeling better now, especially as the days lengthen, so I hope to get back to regular publication.

It is still not clear if meetings will go ahead normally this year and I wonder if people will feel confident enough to attend. Some organizers of events have bravely made plans and you will find some information on the following pages.

The BCSS and other societies have arranged on-line talks which have given us the chance to see world class presentations, an activity which I hope will continue even when life gets back to something like normal.

We are now seeing the negative impacts of Brexit on our hobby. Since leaving the EU, plants and seeds can no longer be imported into the UK from the EU without supporting documentation.

Seeds require a health certificate in order to be imported from suppliers in the EU. These are expensive to obtain and are unaffordable for the usual value of a hobbyist's seed order. Some dealers are also unwilling to undertake the extra work so will not export to the UK. This is a major problem since there are currently no commercial succulent seed producers in the UK. Societies like the BCSS will also struggle to get seeds for their distributions to members and they will be unable to send them to overseas members or even to those living in Northern Ireland.

For cacti and some other listed succulents, a CITES export permit is required for plants sent to UK from the EU together with a matching import permit. This is an expensive process which takes weeks and effectively means that unless you are a large volume commercial

dealer, it is impossible to buy plants from the EU.

This is also a serious threat to our hobby since many of the UK sellers relied on getting plants from Holland to sell to us at shows and by mail order. Many of you will remember the amazing plant sale at the last BCSS National Show six years ago. As we look forward to the National Show this year, it is clear that overseas nurseries will not be able to attend.

I hope that, in time, nurseries will do more of their own propagation and that specialist growers will harvest carefully pollinated fruits from their plants and donate them to the Societies for distribution. But all this will take time and will force up the price of plants and seeds.

I am looking forward to the event at RHS Wisley to celebrate the life of Gordon Rowley. It will also be a chance to visit the new Hilltop Centre and see the wonderful garden at a lovely time of year. And for BCSS members, there is a reduced entrance charge. After the pandemic, dealers should have plenty of plants for sale and there will be talks and displays.

The last couple of years have been difficult for everyone but I am hearing that some friends are planning visits to habitat again. I really hope to make a trip myself this year, I miss the excitement of exploration.

Meanwhile we have the worry of huge increases in energy costs. This will increase our heating bills and is bound to feed through to the price we pay for plants. We have been fortunate over the years to be able to buy plants at cactus events at very low prices, often less than the true cost of production.

Because of the long time since the last edition, this one is unusually large. If I have forgotten something you hoped I would publish, please contact me for next time.

Good Growing *Graham Charles*

NEWS AND EVENTS

The Cactus Explorers Club 15th Meeting in 2022

August 12–14th 2022

The Conference Centre
Stamford Court, Leicester.

Following the cancellation of the 2020 & 2021 events, I have booked dates in August again with the hope that it will be possible to meet.

It will be the usual mix of talks from invited speakers and attendees.

The price for the weekend is **£235** which includes two nights in en-suite single rooms, all meals, refreshments, and wine with the evening meals.

There will be sales of plants, literature and seeds, free for vendors.

Enjoy a relaxed environment, a good place to meet old friends and make new ones. The bar offers real ale, popular with Cactus Explorers.

When I hope there is more certainty, I will send an invitation letter out early next year to regular attendees and confirm your booking status and any of your money I have retained.

Graham Charles

North West Cactus Mart

Saturday 7th May 2022

Parish Hall, St. Thomas More Church,
Mainway, Alkington, Middleton,
Manchester M24 1PP

10.30am start time

BCSS Showing & Judging Weekend

7 & 8th May 2022

Presentations by experts

Fun interactive sessions

Improve your showing and judging skills

Take a test and qualify as a judge (optional!)

Plant sales

Plenty of time for meeting friends

Full weekend or day delegate rates

**Hilton Hotel (Next to the M1),
Leicester**

Bookings: Bill Darbon:

william.darbon77@btinternet.com

BRISTOL CACTUS SOCIETY



Special Meeting 6th August 2022

at 2.30pm

The Tom Mogg Memorial Meeting

Speaker – Mr Graham Charles

“ Matucanas in Habitat and Culture ”

We would like to extend an Invitation to anyone to join us at this special meeting (A Visitors Meeting Charge of £3.00 will apply, unless joining as a New Member)

Venue:- William Slatter Room,
Filton Community Centre, Elm Park,
Filton, Bristol, BS34 7PS

A day to remember Gordon Rowley

10th April 2022

at the new Hilltop Centre
RHS Wisley Garden

Doors open at 10.00am

Displays, Plant Sales, Lectures.

Open to the public.

No additional charge, just garden admission.

Everyone enjoys a day out at the splendid garden that is Wisley. It will look wonderful in April and you can visit the remarkable new Hilltop Centre (pictured below) and enjoy cactus and succulent displays, talks and sales.

BCSS members can get a discount on entrance to Wisley on the day (present your membership card) and there is no further admission charge to the event.

Gordon Rowley (pictured below in his glasshouse back in 2002) will be remembered in what would have been his 101st year.

GC



Gordon Rowley in 2002



Picture provided by the RHS

Literature for sale

Those of you who like to collect reference material about your favourite plants will know that some useful items are not available on the web and are rarely offered for sale in printed form. Your best chance to own them is when a specialist library comes up for sale.

Prof. Len Newton (UK) has decided to sell many items from his extensive library including scarce items about his favourite African succulents.

You can download his latest list [here](#).

He is willing to send worldwide.

More Literature for sale

Another chance to find a book you have been searching for.

Paul Foster (UK) is selling his library which contains many unusual and interesting items.

You can download his latest list [here](#).

Please contact Paul if you find something of interest. He will make you an attractive offer including packing and carriage.

Paul will post worldwide.

The BCSS AGM

30th April 2022

In the light of uncertainty over Covid 19, the BCSS will hold another Zoom AGM. Details of how to join the meeting will be published in the March *CactusWorld*.

Havering Cactus Mart

Saturday 14th May 2022

North Romford Community Centre

Clockhouse Lane, RM5 3QJ

10.30 – 16.00

We all enjoy the opportunity to buy plants and this long-standing event gives you the chance to add new plants to your collection.

CactusWorld LIVE!

The BCSS National Show

Saturday, 3rd September 2022

George Stephenson Exhibition Hall

Newark County Show Ground

NG24 2NY



The BCSS National Show was due to take place in 2020 but had to be cancelled due to the pandemic. With all the uncertainty the decision was taken not to attempt to hold a show until 2022 so now, after a 6 year gap, the event of the year will take place in September.

Put the date in your diary!

The 14th Spalding Cactus Mart

Saturday 23rd April 2022

10.00am–3.00pm



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

15 nurseries and growers in attendance

Ample free parking
Free admission to the Mart

Refreshments available all day

For further details please see the
BCSS Spalding Branch website:
www.spalding.bcsc.org.uk

Vote! Vote! Vote!

Members of the BCSS have the chance to elect a new Chairman.

You will find the voting paper in the March *CactusWorld* so please help the future of the Society by voting.

ICSL

International Cactus/Succulent Lexicon.

A new resource created by Hans Frohning.

[Download](#) the Introduction.

[Visit](#) the Lexicon web site.

Northern Cactus Mart

Saturday 25th June 2022

Holy Trinity Church Hall, Church Street,
Rothwell, Leeds LS26 0QL

This year's event is at a new venue with much more space and refreshments will be available. Conveniently located near where the M1 and M62 cross.
More details from Peter Smith
smipt6@aol.com

South America 2013/2021

The latest booklet from Giovanna Anceschi & Alberto Magli is available as a [free download](#).

It includes notes on Taxonomy and Nomenclature including new names and combinations.

BRITISH CACTUS AND SUCCULENT SOCIETY (Bristol Branch)



**Summer Meeting 20th August 2022
at 2.30pm**

**Speaker – Prof. Ralph Martin
“In My New Greenhouse 2017”**

This is an Open meeting for BCSS Bristol Branch Members and Bristol Cactus Society Members (A Visitors Meeting Charge of £3.00 will apply)

Venue:- William Slatter Room,
Filton Community Centre, Elm Park, Filton,
Bristol, BS34 7PS

AfM Sonderheft 2021

"In the first part of the treatment of the series *Leucocephalae* Holger Rudzinski deals with *Mammillaria geminispina* and its related taxa. I think this is a very interesting species community, whose representatives are probably numerous in most collections. I would just like to draw attention to the beautiful plant groups of *Mammillaria geminispina*, which can reach huge sizes in nature, but also to *Mammillaria hahniana*, which also grows in larger groups at its location and which, with its beautiful, extremely long axillary hairs, meets with admiration from its viewers in every collection, as well as in the field."
(U. LEHMANN)



Die Reihe *Leucocephalae*
der Gattung *Mammillaria*
(Cactaceae) Teil 1

Mammillaria geminispina
und verwandte Taxa

This workbook in DIN A4 landscape format with a metal spiral binding (Wire-O binding), printed in full color, with hard PVC (crystal clear) foil cover front + back includes approximately 356 pages, which contain 210 illustrations, 155 reproductions, 45 maps and 21 tables, besides an interesting text, which will surely provide for many stimulating discussions will provide.

This special issue is available from 01.05.2021 at the price of 29.00 € plus 5.00 € packing + dispatch (European foreign countries 7.50 €) available by transfer of the corresponding amount to the account of the AfM at the Sparkasse Westerwald-Sieg:

IBAN DE24 5735 1030 0050 0600 86 BIC MALADE51 AKI
Password: Sonderheft 2021 Leucocephalae Teil 1

Please don't forget to include your name and address when ordering!

Bristol Cactus Societies

Incorporating The Bristol Cactus Society (67th Annual Show)
and The Bristol Branch of The British Cactus and Succulent Society (26th Annual Show)

Show and Exhibition of CACTI & SUCCULENTS



Carnegiea gigantea

Saturday 28th May 2022

10:30 am – 5:00 pm

**AT FILTON COMMUNITY CENTRE
ELM PARK, FILTON, BRISTOL, BS34 7PS
Admission: £1**

**PLANT SALES – REFRESHMENTS – EXPERT ADVICE ON HAND
FFI: CALL 0117 950 3604**

Le Couleurs Cactus Club présente la 13^{ème} édition de

Couleurs Cactus

Le salon des cactus et plantes succulentes

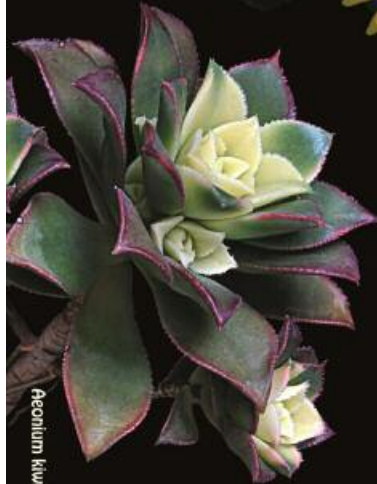


9h - 18h



Echeveria sp. par Yann Cochard

Vente - Expo - Conférences
28 - 29 mai 2022
Égliseneuve près Billom
ENTRÉE GRATUITE



Aeonium kiwi par Christine Tarin



Echinopsis sp. par Héléne Sediri

Le Cactus Francophone

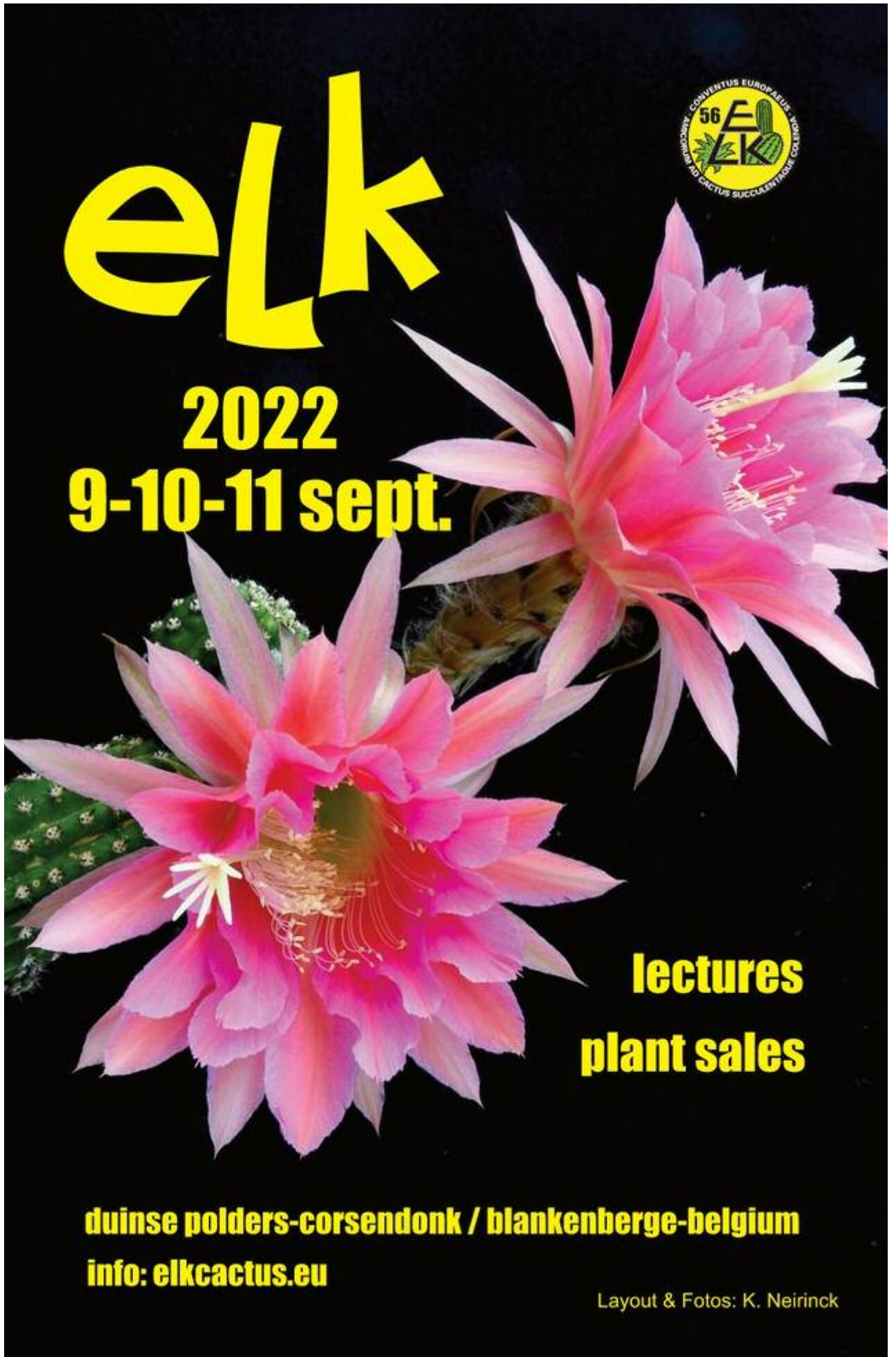


www.cactuspro.com



Plus d'infos :
www.couleurs-cactus.fr

Inventé par nos soins. Ne pas jeter sur la voirie.



elk

2022
9-10-11 sept.



lectures
plant sales

duinse polders-corsendonk / blankenberge-belgium
info: elkactus.eu

Layout & Fotos: K. Neirinck

LE JARDIN EXOTIQUE, MONACO

The new Botanical Centre of the Exotic Garden of Monaco was inaugurated on the 31st October 2017. Organized in three levels, it includes 900m² of glasshouses and 1000m² of shelters. It took two years of work to construct and is located just in front of the Exotic Garden with an amazing view of Monaco.

The relocation of the Botanical Centre started in 2015 with the concept of the final design, and the beginning of the repotting. The relocation of plants was done between January and July 2017.

Endangered species conservation

The Botanical Centre hosts approximately 10,500 plants, 500 in the ground and 10,000 in pots. The heaviest plant weighs 2 tonnes, the

tallest is almost 11 meters high and the oldest was introduced in 1954 (*Aloe eminens*). 85% of the plants kept in the Botanical Centre are protected by CITES (Convention on International Trade in Endangered Species).

The plants are distributed in glasshouses and shelters by their geographical origin, their temperature needs, their size, and their utilization. This distribution was thought to facilitate visits to the Botanical Centre.

The Botanical Centre of Monaco is divided into several spaces.

- The Mexican greenhouse contains subjects from the Cactus family but also subjects from the Agave family and some Fouquieriaceae.
- The American shelter contains plants from



Figure 1. African and Madagascan glasshouse.



Figure 2. African and Madagascan glasshouse.



Figure 3. Mexican glasshouse.



Figure 4. American shelter.



Figure 5. American shelter.



Figure 6. Shelters at the Botanical Centre photographed in August 2021.

the Cactus family. This not closed and not heated structure respects their annual vegetation cycle (alternation between growth/flowering hot and humid period and a cool and dry rest period).

- The African and Malagasy glasshouse, the biggest one in the Botanical Centre with its 14m height, hosts old plant collections coming from Africa and Madagascar. The main genera are *Euphorbia* and *Aloe*, for which the growing cycle is reversed from the Cacti.

The most exceptional subjects are part of the Didiereaceae (*Didierea* and *Alluaudia* genera), Pedaliaceae (*Uncarina* genus), endemic to Madagascar, and also Apocynaceae (*Pachypodium* genus) and Cucurbitaceae, caudiciform succulent plants.

The Botanical Centre of the Exotic Garden of Monaco is a botanical conservatory, which has

two goals:

The conservation of a reference collection of cacti and other succulent plants providing the ex-situ protection of those plants that are often rare and threatened in nature.

The carefully controlled reproduction of these subjects (control of the parents, study of their fertility, manual pollination, precautions against hybridization...) to produce plant material (seeds), for distribution to the international network of botanical gardens.

Keeping a living collection of threatened plants is a first step for the ex-situ conservation of these species. The next step is to multiply them under controlled conditions in order to distribute the plant material to others botanical gardens and to ensure their sustainability in different places.

The Exotic Garden of Monaco is one of the few botanical gardens that distributes plant

material with original data, obtained by carefully controlled reproduction with information that allows full traceability.

Everything starts with the selection of species. From the first signs of blooming, the subject is surrounded by a net that avoids the coming of the insects and pollination by an unknown parent. When it's time, the gardeners proceed with a manual pollination using pollen that has a determinate origin.

This is the most delicate and complex stage because, usually, pollination only succeeds in particular conditions. Replacing the natural pollinator is not always easy; the pollination can be different from one genus to another and different from one family to another.

It may need two different flowers, two flowers from two different plants, or even sometimes flowers from a female plant and a male plant. And sometimes the access to the fertile area of the female flower is practically a surgical matter.

If the pollination works and a fruit is growing, we need to be careful that the fruit does not spread its seeds. The collected fruits will be cleaned, the seeds dried and kept in appropriate conditions. During all this process, the reference to the parent plants is carefully kept and everything is written and recorded on a database. The Botanical Garden that receives the seeds from the Exotic Garden has all the information about them.

Diane Ortolani

Director of the Jardin Exotique de Monaco

The Botanical Centre of the Jardin Exotique is currently open to the public free of charge from Tuesday to Saturday from 8.30am to 3.30pm.

You can join '*Les Amis du Jardin Exotique*'

The Association unites fans of cactus and other plants, travel, meetings and lectures. Its aim is to share, with renowned specialists of all countries, passion and experience can be found in the journal: "*Cactus & Succulentes*".

This journal (in French) deals with themes related to the discovering of our plants in their natural environment, but also the aspects of

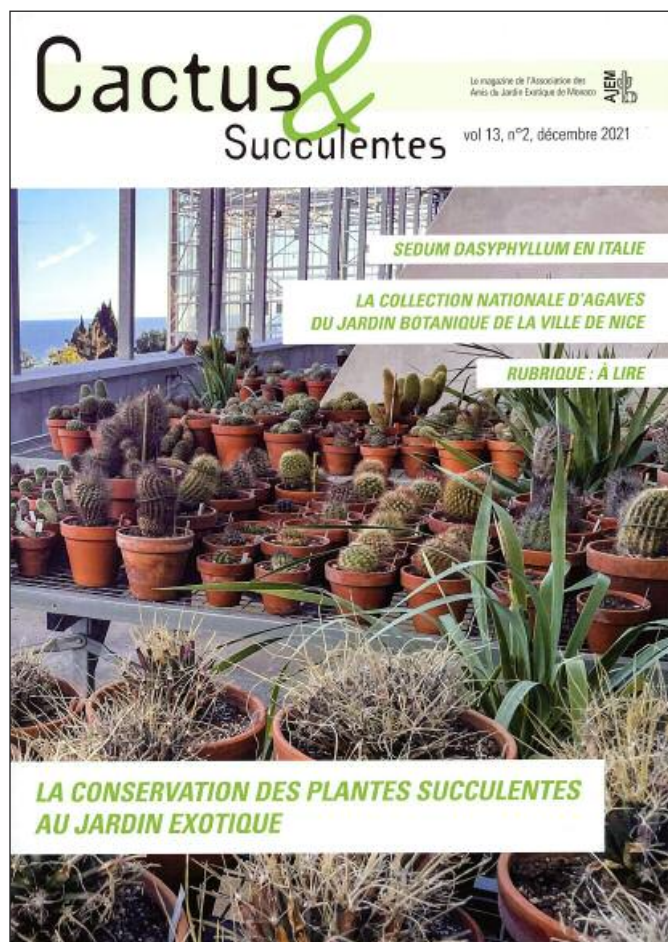


Figure 6. Review of the association 'Friends of the Jardin Exotique de Monaco'

their culture, the outreach of botanic knowledge, the collection's management and conservation activities.

The journal, which is richly illustrated and characterized by a quality presentation is published twice a year.

A newsletter "AJEMinfos", principally published by e-mail, provides information about the Association, news and echoes of the succulent plant world.

Being part of the Exotic Garden of Monaco's Friends is, of course, having the right to access freely the Exotic Garden and its specialized library, enjoy its events, conferences and technique activities.

You can become a member and get the journal for 28€ per year. See membership information at

http://www.amisjem.com/bulletin_adhesion.html

For further information: ajem@amisjem.com
www.amisjem.com

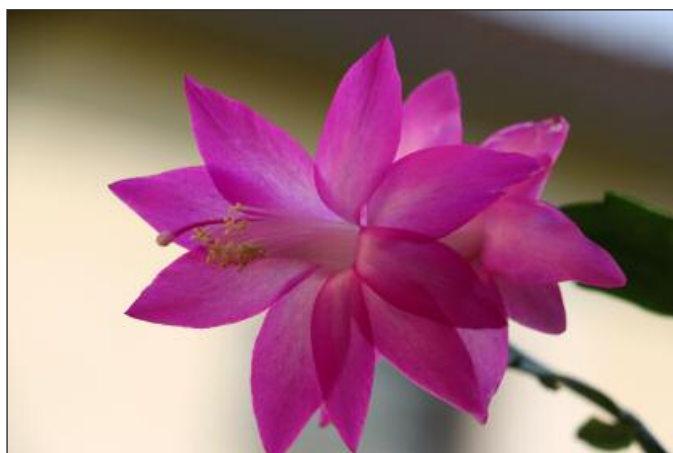
See also an account of visiting the garden: Gillman, R. (2021). The hanging gardens of

IN THE GLASSHOUSE

New hybrids from the genus *Schlumbergera*.

Frank Süpplie presents some new *Schlumbergera* hybrids. He has been growing new *Schlumbergera* hybrids since 1993 and evaluating them for many years before they are named. Here are a selection of his new hybrids. They are all easy to grow in European conditions.

All photographs © Frank Süpplie.



Figures 1 & 2. *Schlumbergera* 'A.J.S. McMillan'.

Schlumbergera 'A.J.S. McMillan' Süpplie hybr. nov.

Parentage: 'Nicole' × 'Ilona'

Description: truncata group

Flower petals dark pink-edged; flower petals have a lighter pink centre. Flowers do not reflex completely. Flowers are 7.5cm long and 6.5cm broad. Flower tube white. Filaments rose coloured, anthers and pollen light yellow. Style purple, stigma lobes white-rose. Stem segments 4.5cm long and up to 3.2cm broad, dentate, dark-green.

Named after Adrian John Stuart (A.J.S.) McMillan an former English expert in *Schlumbergera* hybrids. Together with John



Figure 3. *Schlumbergera* 'Amethyst Queen'.

Horobin he wrote a book about *Schlumbergera*. He wrote a lot of articles for the Epiphytes Journal, the publication from the E.P.S.G. 'Mac', (his nickname), passed away on the 4th of March 2008. As he was such a great specialist of these plants, a hybrid must be named after him.

Schlumbergera 'Amethyst Queen' Süpplie hybr. nov.

Parentage: 'Nicole' × 'Ilona'

Description: truncata group

Flower petals pink, fuchsia edge, centre of the flower petals is pink. Small white spot at the base of the flower petals. Sometimes the flower petals are narrowed which is called quilled. This is a word Dolly Kölli introduced in the 1990s for this behaviour in *Schlumbergera* flowers. Flowers

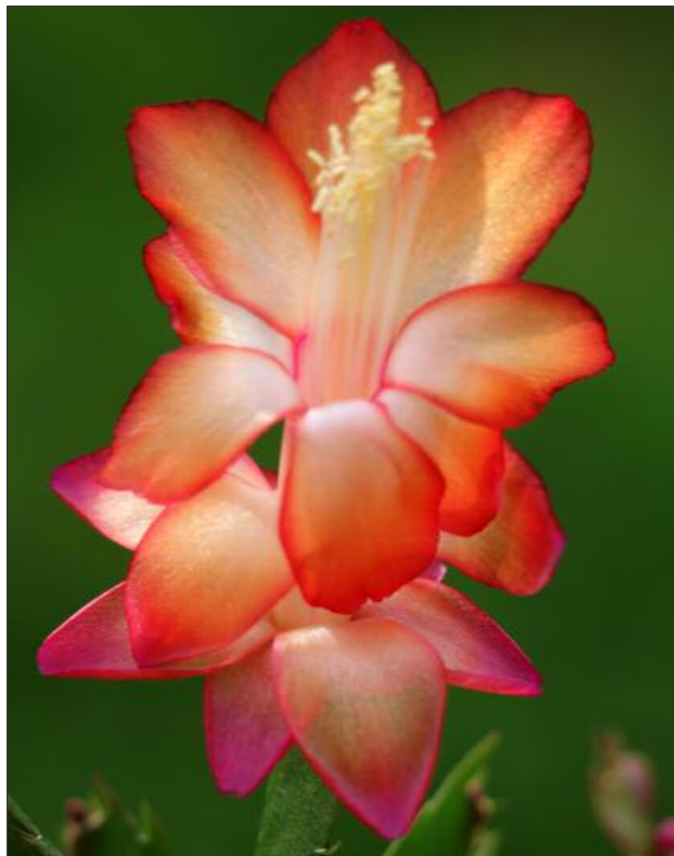


Figure 4. *Schlumbergera* 'Diamonds are Forever'.

are 7cm long and 6cm broad. Filaments rose, anthers and pollen light-yellow. Style purple, stigma lobes are rose-coloured. Stem segments 3.5cm long and 2.5cm broad, dentate, dark green-coloured.

The plant is actually more compact in growth than the sibling 'A.J.S. McMillan'. The stem segments are smaller. The flower is also smaller and different in form from the siblings plant. The colour of the flower is much darker than can be captured by the photograph.

***Schlumbergera* 'Diamonds are Forever' Süpplie hybr. nov.**

Parentage: 'Samba Brazil' × 'Thor-Britta'

Description: truncata group

Flower petals with red edges, orange-yellow centre and a white base. The flower petals near the ovary have purple tips. Filaments are about 5cm long, style and stigma lobes almost not visible. Style between 1–3cm long, flower is 4–5cm long and 3.8–4cm broad. Stem segments are 3cm broad and 3cm long. Comments: the style is sometimes just 1cm or even shorter and is then not visible from the outside. Plant grows upright and a fully grown plant is 20–25cm in height.



Figure 5. *Schlumbergera* 'Diva'.

The parent 'Samba Brazil' was introduced by Rohdes in 2007. It was directly used as pollinator, as well as mother plant by me. I hoped the features from the yellow centre of the flower petals and the compact growth would be transferred to the seedlings. As I did know that the characteristics of 'Thor-Britta' would be not be dominant having seen earlier crosses with this hybrid, I had strong hope that the seedlings would show promising results. 'Diamonds are Forever' has many good qualities from the parent 'Samba Brazil' and is not difficult in culture. This last feature is due to 'Thor-Britta' which is easy in culture.

***Schlumbergera* 'Diva' Süpplie hybr. nov.**

Parentage: 'Acadia' × 'Bridgeport'

Description truncata group

Flower petals cherry-red edged. Centre of the flower petals red. Base at the flower petals is white. Flower, including filaments, is 6cm long and 4cm broad, without filaments just 3cm long. Flower petals reflexed strongly. Flower tube white. The filaments are extremely long, white. Anthers and pollen creamy. Style is red. Stigma lobes are purple. Stem segments 3.8–4cm long and 1.9–3cm broad, dark-green coloured. Upright growth.

Here I have used two very nice hybrids as the parentage. 'Acadia' is a Japanese hybrid and 'Bridgeport' is a hybrid from B.L.Cobia from Florida. Both are not the easiest hybrids in cultivation but the seedlings raised do not show any problems in growth or branching. 'Diva' has a compact growth but is very 'full' plant and makes a lot of stem segments. Easy to propagate and the cuttings root already within a week.



Figures 6 & 7. *Schlumbergera* 'Dutch Success'.

This is a very attractive hybrid which has quite a different look from what we know from *Schlumbergera* hybrids, as she is attracting so much good looks I chose the name 'Diva' for her. Not difficult in culture, it will find it's way into collections.

***Schlumbergera* 'Dutch Success' Süpplie hybr. nov.**

Parentage: ('Thor-Britta' × Barbara Mott') × ('Darma' × 'Golden Sun')

Description: truncata group

Flower petals are rose with dark edges. The centre of the flower petals is light rose. There is a short, about 5mm long, fine pink midstripe appearing at the tip of the flower petals which makes this hybrid so special. Flowers 6cm long and 5cm broad. Flower petals not reflexing. Flower tube is rose. Stem segments are 4.5cm long and 3.2cm broad.



Figure 8. *Schlumbergera* 'Michel Combernoux'.

I had already have another seedling selected from this cross ('Epric's Star') in 2011. The other seedlings were still under control. Finally I have picked this seedling and another to be named. The blooming of the other seedlings took longer than 'Epric's Star' which already bloomed after 3 years. Fortunately, the seedlings performed as I wanted and showed some beautiful different pink flowers. Like the sister seedling 'Epric's Star' this hybrid shows after 3 days a change in colour of the rose centre of the flower petals. It changes to a light yellow.

***Schlumbergera* 'Michel Combernoux' Süpplie hybr. nov.**

Parentage: 'Samba Brazil' × 'Thor-Britta'

Description: truncata group

Flower petals are edged red-orange. The tip of the flower petals is yellow-orange. The centre of the flower petals is yellow-orange. The bases of the flower petals are creamy-white. Flower tube is roseine coloured. Style and stigma lobes are purple. Filaments are white. Anthers and pollen light yellow. Flowers are 5.5cm long and 5cm broad. The stem segments are 1.8–3.1cm long and 1.1–2.5cm broad. The plant will be a maximum of 12cm high.

This is another seedling from 'Samba Brazil' which performs well so it deserves a name. I have named it after Michel Combernoux. Michel is a good friend in France who has been in love with Christmas Cacti for a long time. He runs an excellent website concerning his collection and his photographs. The third day after



Figure 9. *Schlumbergera* 'Ruslana'.



Figure 10. *Schlumbergera* 'The Yellow One' opening the flower petals reflex completely.

***Schlumbergera* 'Ruslana' SÜPPLIE hybr. nov.**

Parentage: 'Bridgeport' × 'Thor-Britta'

Description: truncata group

Flower petals of this hybrid are completely white. The flower petals are reflexed. Flower tube is roseine coloured. The filaments are white, anthers and pollen light-yellow coloured. There is, similar to the parent 'Bridgeport', a clearly visible pink corolla ring. Flowers are 6cm long and 3cm broad. The stem segments are 4cm long and 3cm broad, dark-green coloured,

dentate. Upright growth.

It took some years to get seeds from 'Bridgeport'. The seedlings grow very slow in the beginning. After propagation by cuttings the growth was much quicker. The slow growing is a feature from the 'Bridgeport' parent. The flowers are not temperature sensitive and the flower tube stays roseine, even if it's grown at 25°C as I did as a test. The hybrid is named after the Ukrainian singer Ruslana.

***Schlumbergera* 'The Yellow One' SÜPPLIE hybr. nov.**

Parentage: 'Thor-Sofia' × 'Golden Sun'

Description: truncata group

Flower petals have a dark-yellow edge. The centre of the flower petals is yellow. The flower petals are elliptic in shape and are strongly reflexed. Flower tube is rose-yellow coloured. Flowers are small, 3–4cm long and up to 3cm broad. Filaments are white, anthers and pollen cream coloured. Stem segments are dentate, up to 3cm long and 2.8cm broad, dark green coloured.

Yellow hybrids are always difficult to keep yellow and this is not an exception. During the



Figure 11. *Schlumbergera* 'Xenia'.

flower budding process they should be kept at a minimum temperature of 18°C, warmer is even better. Otherwise you will see some rose or pink colouration in the flower. However, the yellow ones are the most valued ones. Both parents are small growing plants, so I hoped that the seedlings would also have that feature, and actually they did. Also this new hybrid is a small growing plant.

***Schlumbergera* 'Xenia' S upplie hybr. nov.**

Parentage: 'Ceberuska' × 'Thor-Tina'

Description: truncata group

Flower petals are edged hot pink and the flower petals are strongly reflexed. The centre of the flower petals has a white midstripe. The flowers are 5cm long and 3.5cm broad, there is actually no corolla ring visible. Flower tube is white. Filaments are roseine coloured. The stem segments are 4.5cm long and 3cm broad, dentate, dark-green coloured.

This is also a very nice, new, good performing hybrid with an amazing flower. I



Figure 12. *Schlumbergera* 'Zygotica'.

I love the strong reflexing of the flower petals. It is named after a good friend of mine.

***'Schlumbergera* 'Zygotica' S upplie hybr. nov.**

Parentage: 'Samba Brazil' × 'Thor-Britta'

Description: truncata group

Flower petals are dark-red edged and have orange tips. The flower tube is white. The flowers are relatively small, 4cm long and 3.5cm broad. The stem segments are 2–3cm long and 1.5–2.5cm broad, dark green coloured. Fully grown plants are very compact and getting to only 11cm in height.

The culture of these new hybrids is the same as all other *Schlumbergera* hybrids. Keep them out of the sun. They like a shady place in your house or greenhouse. If grown in a greenhouse please use a shade cloth of at least 80%. The temperature should in the summer not exceed 30°C and in the winter does not go below 18°C. So house rooms are ideal for them as well. Eventually you can hang them in the garden during summer. Keep them not completely wet all the time. They do not tolerate a too wet soil. The soil should be lightly moist, but not drenched. Fertilise every two weeks from May to the end of August with a 10-10-10 fertiliser. For getting blooms keep them in a room with less than 8 hours light for some weeks and they start making buds. They do not actually have a winter rest period like other cacti. It is a great joy to grow them.

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SICCOBACCATUS ESTEVESII SUBSP. ESTEVESII IN CULTIVATION

A dramatic Brazilian cactus, rarely seen in collections and even more rarely seen in flower.

Text and photos: K. Neirinck. Translation: R. Fonteyne.



Figure 1. *Siccobaccatus estevesii* subsp. *estevesii* branching dichotomously.

Siccobaccatus estevesii subsp. *estevesii*

Synonyms:

Austrocephalocereus estevesii Buining & Brederoo (1974)

Micranthocereus estevesii Ritter (1979)

We have already discussed the genus *Siccobaccatus* in **Cactus Explorer** No. 17, 2016, where *Siccobaccatus dolichospermaticus* in particular was addressed. Here, a second species from this small genus is presented: *Siccobaccatus estevesii* subsp. *estevesii*. Already, from an early age, this species has a beautiful blue epidermis and is decorated with a golden-yellow spination. *Siccobaccatus estevesii* subsp. *estevesii* originates from the Brazilian state of Goias where it thrives on bare rocky ground,



Figure 2. Lateral cephalium of *Siccobaccatus estevesii* subsp. *estevesii* with flower.

in full sun, at altitudes between 600 and 750m.

Cultivated from seed, *Siccobaccatus estevesii* subsp. *estevesii* grows very slowly on the European continent. It takes at least about 15 years before it reaches maturity to produce a cephalium. From this cephalium the flower buds, the flowers and the fruits will appear. In our regions, flowers are only formed during very hot summers. This has been the case in recent years. Yet in 2019 I was very pleased that my *Siccobaccatus estevesii* subsp. *estevesii* blossomed for the first time. It has fairly large white flowers of over 5cm diameter, large for the genus.

Although it is a night flowering plant, it was also possible to photograph the flowers the



Figure 3 & 4. *Siccobaccatus estevesii* subsp. *estevesii* in flower.

day after they opened. You can see the results in the printed photos here (Figures 1 to 3). In 2020, I could "cheer" 3 times. At that time, the length of the cephalium had increased by approximately 20cm in length since its arrival three years before. Currently, this columnar cactus has a height of 80cm and a diameter of 10cm. The cephalium has grown 20cm long with a width of 9–10cm. This result proves that this cereus thrives well. It is remarkable that the plant growing on its own root performs this well.

A second specimen of about 12 years old, is now 60cm in size with a diameter of 9cm. Cephalium formation is not yet to be expected. Young seedlings can be grafted, preferably on a strong rootstock, to promote growth. From experience, however, we know that grafting does not increase growth spectacularly and that plants on their own roots obtain a much nicer spination. A winter minimum of 12°C is recommended.

At the time, seeds and young plants were offered by De Herdt, Rijkevorsel, Belgium. Finally, this plant is sometimes confused with

(the even more beautiful) *Siccobaccatus dolichospermaticus*. The other subspecies was described as *Siccobaccatus estevesii* subsp. *grandiflora*.

Literature

- Braun, P.J. & Esteves Pereira, E (1990).
Siccobaccatus P. J. Braun & Esteves: *gen. nov.*
 Een nieuw cactusgeslacht uit Brazilië.
Succulenta **69**(1): 11–18.
- Braun, P.J. & Esteves Pereira, E. (2001).
 Kakteen und andere Sukkulente in
 Brasilien. *Schumannia* **3**.
- Charles, G. (2009). *Micranthocereus*, a view
 from the field of a popular genus of
 columnar cacti. *Cactus & Succulent Journal*
 (US) **81**(3): 150–155.
- Taylor, N. & Zappi, D. (2004). *Cacti of Eastern*
Brazil.
- Machado, M. & Braun, P.J. (2013).
 "*Siccobaccatus estevesii*". The IUCN Red List
 of Threatened Species.
- Neirinck, K. (2016) *Siccobaccatus*. a magnificent
 cactus genus from Brazil. *Cactus Explorer* **17**.

ON-LINE JOURNALS

On-line Journals for you to download free

Sansevieria Online



The online journal for the growing number of enthusiasts for this genus. A small group of *Sansevieria* enthusiasts publish the first *Sansevieria* online journal in German. They welcome contributions on systematics, morphology, physiology, evolution etc.

This issue includes: Editorial; *Sansevieria canaliculata* Robust with delicate flower; *Sansevieria pfennigii*: Confirmation of existence, improvement of description and preliminary threat assessment; From historical redescription; *Sansevieria hargeisana* in my collection; The collection and propagation of *Sansevieria trifasciata* and its cultivars in Norway

Download the PDF from www.sansevieria-online.de where you can also find a special issue containing field number lists and the index to the journal.

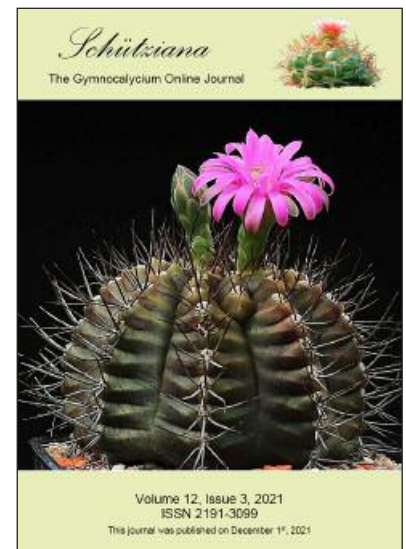
Schütziana

The latest issue of *Schütziana*, the specialist on-line journal for *Gymnocalycium* enthusiasts, 12(3) was published in December 2021 and features:

Lunau, Holger; Editorial 36th International *Gymnocalycium* Meeting- September 3rd to 5th, 2021, in Radebeul (Germany).

Schädlich, Volker; A well-known taxon from Bolivia's lowlands reconsidered.

The text of this valuable publication is available in English, German, Russian and Japanese. You can download free all the issues from: www.schuetziana.org



Cactus Adventures International

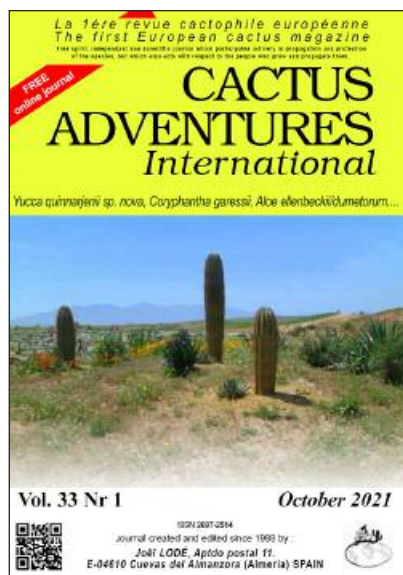
Joel Lodé told us last year that his long-running journal would no longer be published in printed form. It is good to see the second on-line edition with 78 pages has appeared.

Vol.33(1) contents: *Coryphantha garessii*; *Senecio leucanthemifolius falcisectus*; The *Aloe dumetorum/ellenbeckii* puzzle; New Combinations in Cactaceae; *Yucca quinnarjensi* spec. nov.; *Matudapina* gen. nov.; *Bradleya* 39/2021; Fake News: *Melocactus cardinalis*.

You can find it at

http://cactus-aventures.com/pageweb_ENG.html

The download is free of charge



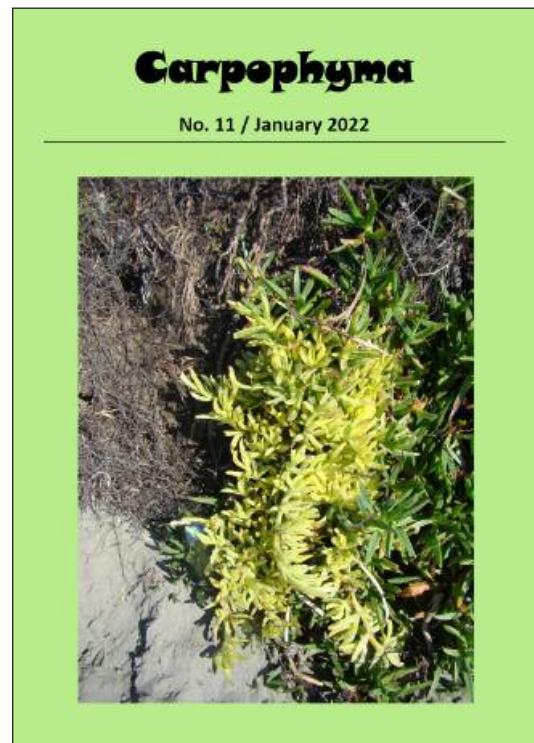
Carpophyma

11 issues of this new on-line publication have appeared this year. It is the brainchild of Eduart Zimer and contains a fascinating mix of subjects including cacti and succulent plants.

Contents of No.11

1. Eduart Zimer - Why is Aunty Cindy enjoying life in Aotearoa?
2. Timeless Music with Delaney Davidson
3. Eduart Zimer - *Solanum jasminoides* Paxton (*Solanum laxum* Spreng.)
4. Elton Roberts - Sand, Rock, Perlite, Charcoal and Pumice
5. Eduart Zimer - Beautiful Cactus Flowers: *Echinocereus subinermis* var. *luteus*
6. Timeless Music with Tami Neilson
7. Eduart Zimer - The Genus *Pachypodium* Lindl (Part 4)
8. Eduart Zimer - Whakatāne / Ohope Beach

Download free from [here](#).



Cactus & Succulent Review

(Formerly Essex Succulent Review)

The *Cactus & Succulent Review* is a high quality quarterly magazine featuring non-technical articles on all aspects of cacti and succulents.

Issue 31, published December 2021, features 64 pages of: Arizona, Mexico...Norfolk; Orostachys – one, two or three genera; *Cumarinia odorata*; Growing ghosts; *Sansevieria pinguicula* the 'walking' Sansevieria; Why I don't like Lithops; More diverse succulents; The sky's the limit; Whatever happened to that *Echinocereus*? & Ultra violets

You can subscribe to the mailing list to be notified by email when each issue is ready to download. Subscription is free and you can unsubscribe at any time.

Further details and back issues are available to download from the website:

<https://www.cactusandsucculentreview.org.uk/>

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contact@cactusandsucculentreview.org.uk

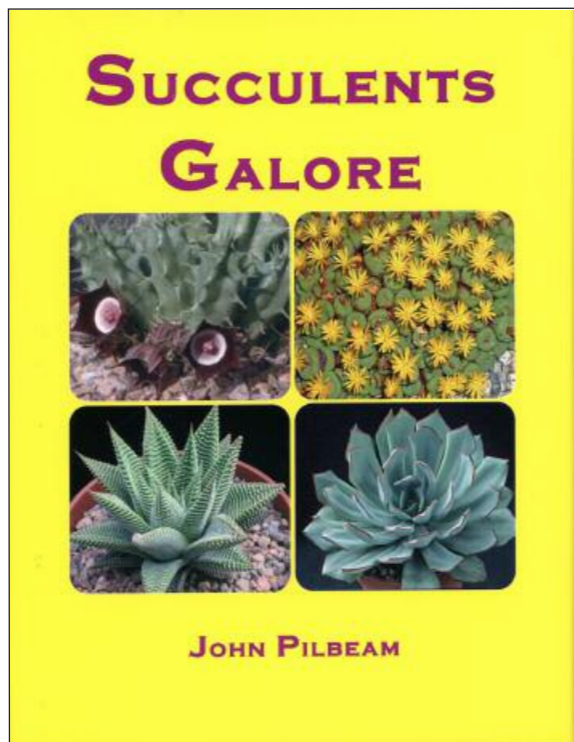
A download treat for lovers of beautiful plants is the book *Viola subgenus Andinium, Preliminary Monograph* by Watson, Flores, Nicola & Marcussen published by the Scottish Rock Garden Club and available as a free [PDF Download](#). Thanks to *Cactus & Succulent Review* for the tip off!

THE LOVE OF BOOKS

Here you will find information about new publications together with some that were published years ago and remain a valuable source of information.

Succulents Galore

John Pilbeam



We all know what to expect from a book written by John Pilbeam. He writes with a relaxed style which is enjoyable to read and effortlessly conveys the information John has accumulated over years of experience.

The diversity of succulent plants available to the grower is splendidly illustrated in this well-produced book. John has brought together a wonderful collection of pictures supplied by his many friends and contacts around the world, together with many of his own.

The 174 genera of succulents (excluding cacti) are organized in alphabetical order, each with a brief introduction which includes selected information about its morphology, taxonomy, distribution and cultivation. Personally, I would have liked more about cultivation but I can see that this would have been difficult if the species in the genus have diverse cultural requirements.

For each genus, John has chosen a selection of species, most of which are available in cultivation. Some may be difficult to find in nursery lists but tracking them down is part of the fun.

Succulents Galore is fundamentally a picture book that enthusiasts will enjoy browsing. All the pictures are good quality and a generous size. They may well arouse your interest and create a desire to own and grow a particular plant for yourself.

400 pages 282 x 217mm, hardbound with illustrated dust jacket. 866 colour photographs.

Price: £48 (UK), £54 (Europe) or £75 (Rest of World), including postage and packing. Available directly from the author and you can pay by PayPal:

E-mail jpilbeam@tiscali.co.uk

John can still supply copies of many of his other books. Download the list [here](#).

GC

Bradleya 39 is available for sale

29 well-illustrated articles to enjoy including nine



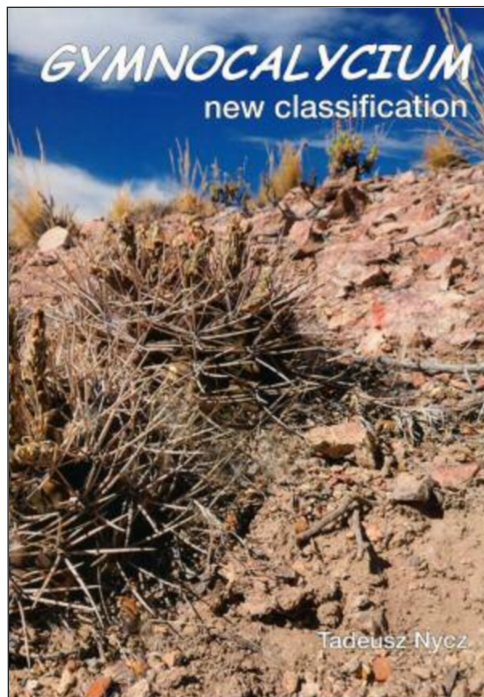
about cacti. Excellent value with 272 pages.

For your copy of *Bradleya* 39, please send payment of £21 (£23 overseas) including post & packing (payable to BCSS) to the BCSS Publications Manager, Brenfield, Bolney Road, Ansty, West Sussex, RH17 5AW, UK.-

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- £ sterling cheques drawn on a UK bank,
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Gymnocalycium
new classification
Tadeusz Nycz



This booklet presents a classification of the genus *Gymnocalycium* based on the molecular study of Pablo Demaino, Michael H. J. Barfuss, Roberto Kiesling, Walter Till, & Jorge O. Chiapella which was published in the *American Journal of Botany* 98(11): 1841–1854 (2011).

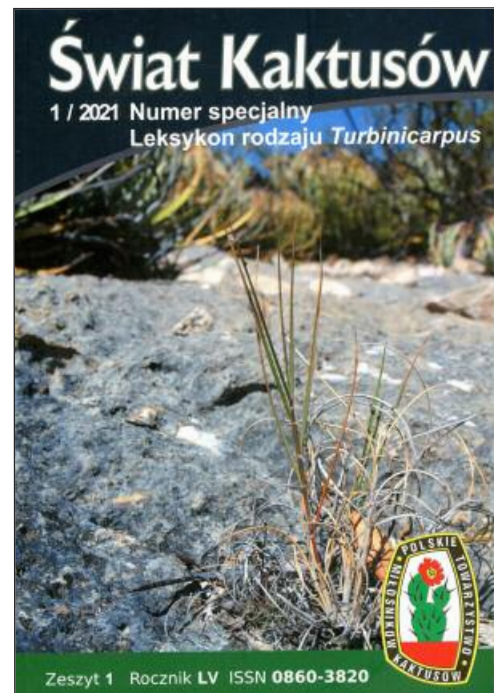
The author does not accept any subspecies, preferring to raise them to the rank of species by publishing the new ranks in this booklet. The classification and nomenclature of *Gymnocalycium* has been the subject of much discussion over the years and I do not think that a single molecular study gives us the definitive answer, especially when it is not supported by morphology.

This publication is well produced with good quality pictures of the plants in habitat. The English text has been well translated and easy to read. It is always better when a separate English edition is published.

36 pages 230 × 160mm plus covers, wire stitched, softbound. 39 colour pictures.

You can buy the book from the author: tnycz@interia.pl for about €10.

Special issue of the Polish Society
Turbinicarpus
Grzegorz F. Matuszewski



This book is only available to members, this one from the Polish Society 'świata kaktusów' (Cactus World), however see below for a special offer to readers of the **Cactus Explorer**.

A companion volume to the one about *Lobivia* (see *Cactus Explorer* 26: 19. This is a well produced comprehensive account of the genus *Turbinicarpus*. After an introduction, all the species are arranged in alphabetical order with good illustrations and brief, interesting text.

Rapicactus species are excluded from this treatment since this is accepted as a different, not closely related genus.

Polish, English and German text, 152 pages plus cover 227 × 159mm, softbound with picture covers, 172 good quality pictures and 8 maps.

There are a few copies of this and the *Lobivia* book available for readers of the **Cactus Explorer**. Price: 20€ + shipping cost. Please send your order to Grzegorz Matuszewski (grzegorz@kaktusymeksyku.pl)

SUCCULENTS ON A PLATE

Graham Charles looks back at Richard Bradley's *History of Succulent Plants*, the first ever book devoted to succulents, published in five parts between 1716 and 1727. It was later reprinted without modification in 1734 and 1739.

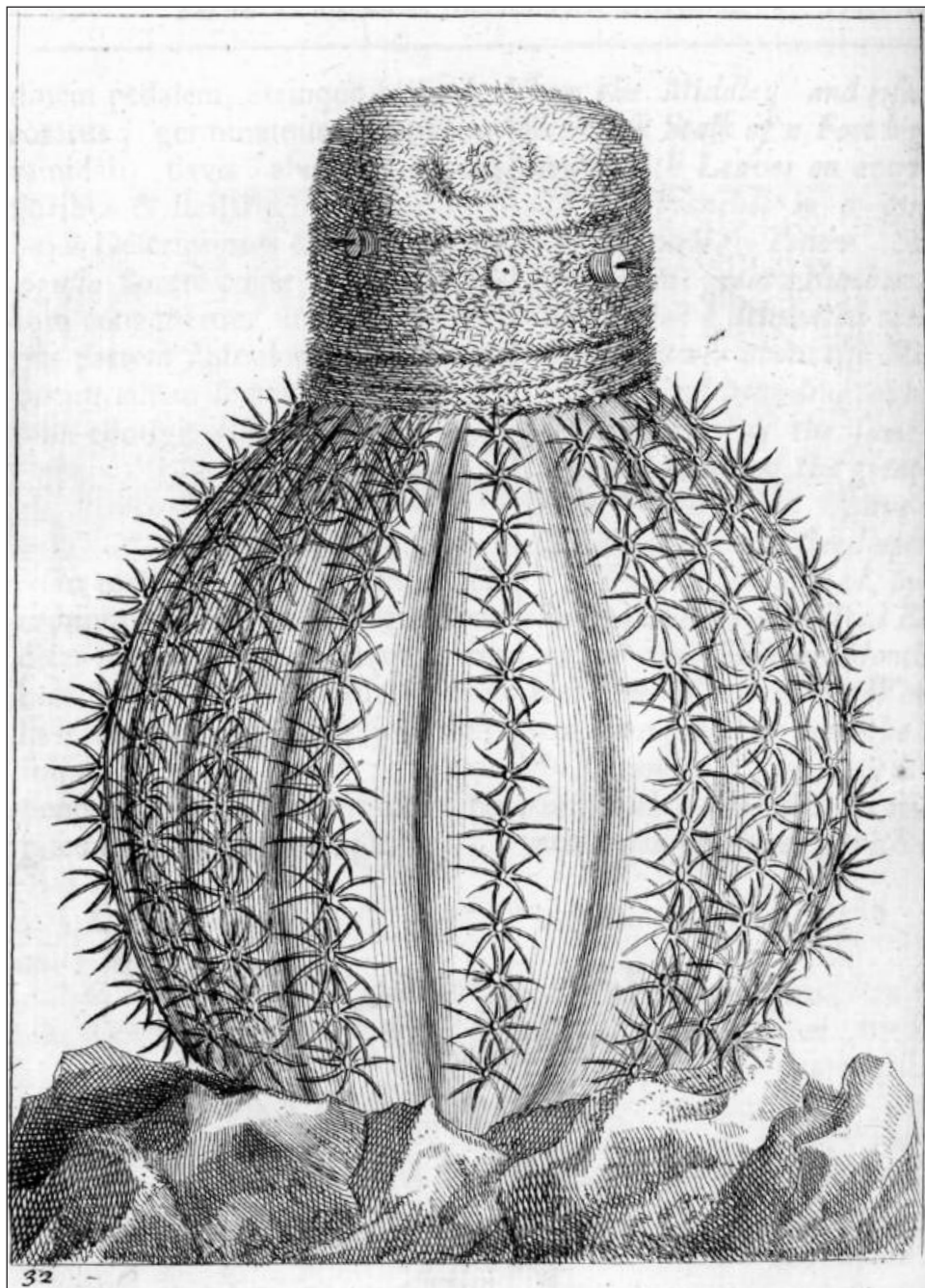


Plate 32.

The Turk's Head, or Turk's Cap, so call'd in America, or with us the true Melon-Thistle.

Usually identified as *Melocactus communis*.

Richard Bradley F.R.S. (?1688 – 1732) was the first Professor of Botany at Cambridge. He wrote many books and pamphlets, some of which occasionally come up for sale. His *History of Succulent Plants*, written in Latin and English, is rare and when an original copy appears at auction, it can sell for thousands of pounds. It was reproduced as part of *Collected*

Writings on Succulent Plants in 1964 by the Gregg Press, with an introduction by Gordon Rowley. There are 50 illustrations in the five published parts. Rowley (1997) tells us that about 14 copies of the book were published with hand-coloured plates, perhaps done by Bradley himself. You can see images of some of these coloured plates in Gordon Rowley's *A*

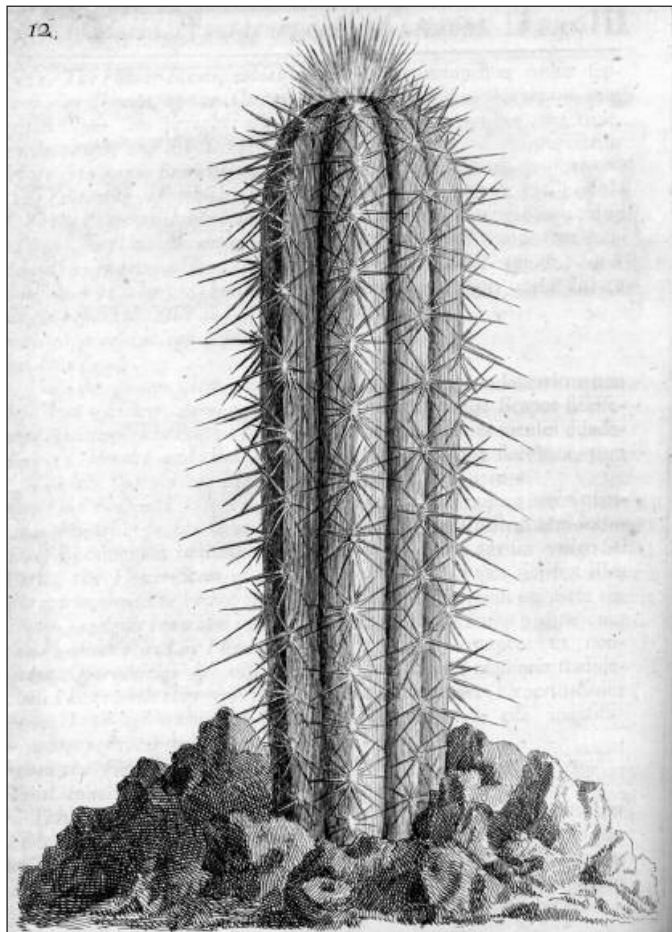


Plate 12. Great White Torch-Thistle.
Usually identified as *Pilocereus royenii*.

History of Succulent Plants (1997). The illustrations here are scanned from my uncoloured copy of the first edition.

You can find more information and a complete list of modern identifications of the plates in the article written by Gordon Rowley in the *GB Journal* of 1954.

When the BCSS decided in 1983 to publish a year book, it was called *Bradleya* in honour of Richard Bradley. It has now reached issue 39 and remains a rich source of information on succulents.

Further Reading

Rowley, G. (1954). Richard Bradley and his History of Succulent Plants. *Cact. & Succ. J. Gt. Brit.* **16**: 30-31; 54-55, 78-81.

Rowley, G. (1983). Dedication to Richard Bradley F.R.S. in *Bradleya* **1**: 1-2.

Rowley, G. (1997). *A History of Succulent Plants*. Strawberry Press.

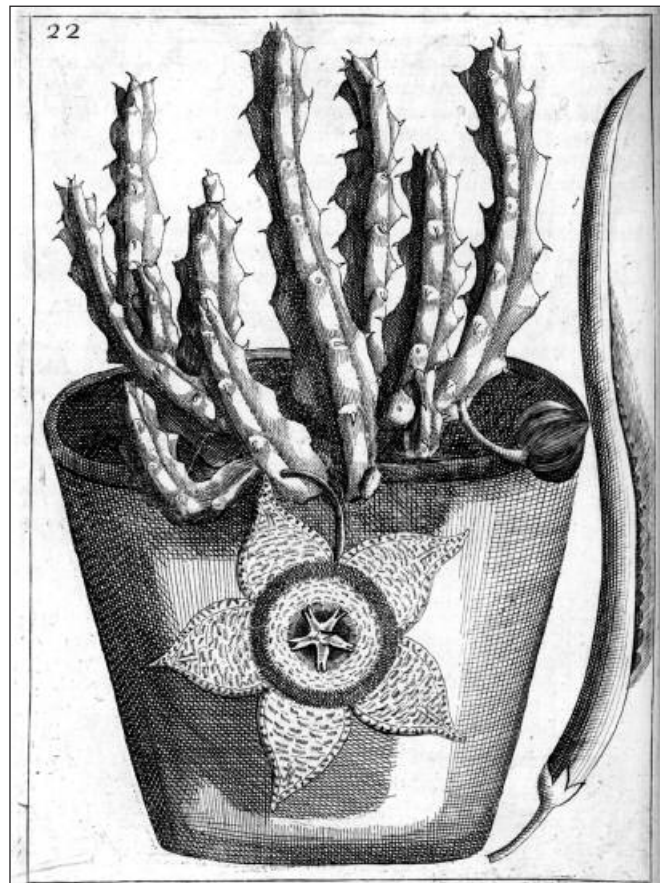


Plate 22. The small creeping thick leav'd Cape Fritillary.
Identified as *Stapelia variegata*.

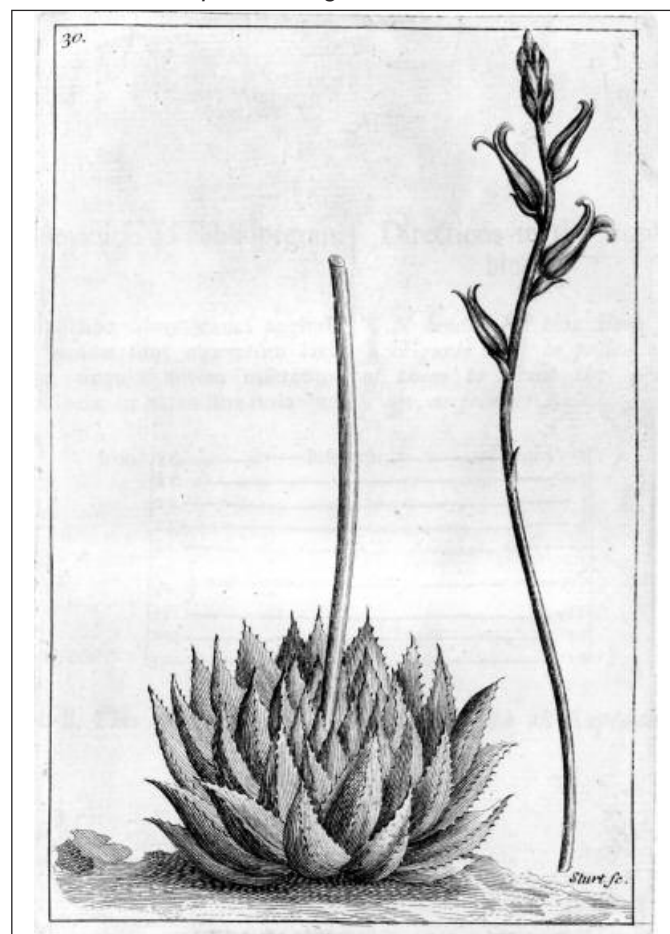


Plate 30. The Little Cluster'd Aloë.
Identified as *Haworthia arachnoidea*.

A FAMOUS CACTUS HYBRID

Many travellers have seen the hybrid of *Oreocereus celsianus* with *Lobivia ferox* that grows 15km East from Yavi near the village of Suripujio in northern Argentina. Arkadiy Seregin visited the place in December 2019 and saw the hybrid in flower. He also saw a plant he thought may be a similar hybrid between *Lobivia ferox* and *Oreocereus trollii*.

Photographs by Arkady Seregin.



Figure 1. *Oreocereus celsianus*, *O. trollii*, *Lobivia ferox* and a few plants of the hybrid.



Figures 2 & 3. Flowers of two different plants of the hybrid.



Figure 4. The hybrid in flower in December 2019.



Figure 5. Possible hybrid between *Lobivia ferox* and *Oreocereus trollii*.

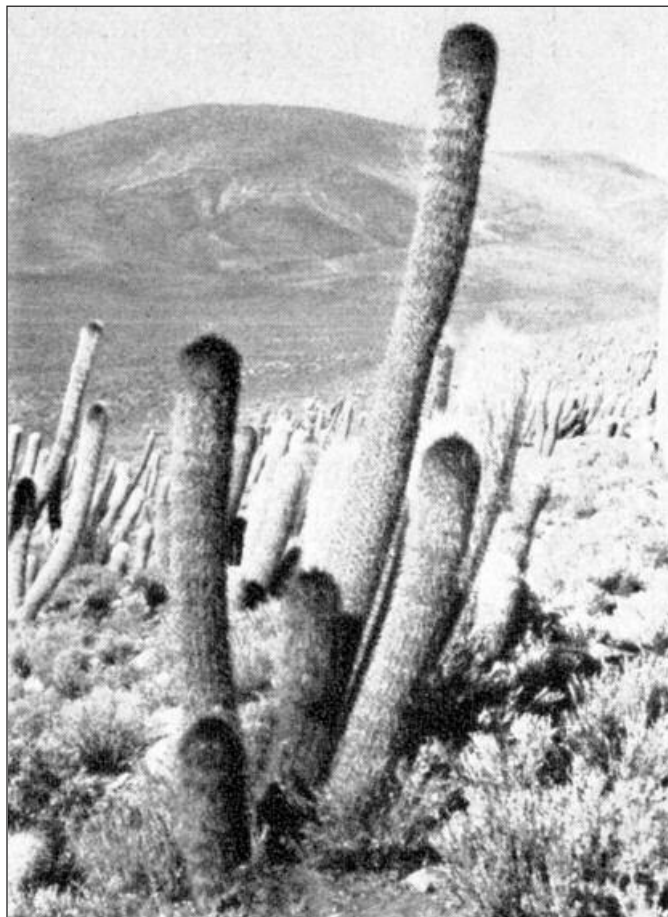


Figure 6. Arkadiy says that Blossfeld visited this hill in the 1930s. This picture from his catalogue looks a lot like the plants in Figure 1!



Figure 7. *Yavia cryptocarpa* grows not so far away to the west.

THE END OF AN ERA

MEMORIES OF DEHERDT'S NURSERY

'The most beautiful plants were found at De Herdt's nursery in Rijkevorsel, Belgium'. Adapted from an article by Tom Twijnstra, Rotterdam/Netherlands, first published in *Mammillaria*, the journal of the German Mammillaria Society.

On Saturday, 19 September 2020, I visited the nursery of the De Herdt brothers in Rijkevorsel in Flanders for the last time. The death of the last brother, Cyriel, a short time later, marked the end of an era. The place where, at weekends, busloads of enthusiasts from all over Europe marvelled at the magnificent collection and returned home with boxes full of new acquisitions was now empty, both of cacti and of people. Only a few plants remained from a unique collection. This is where my enthusiasm for cacti began many years ago.

In the mid-90s, I regularly received cuttings

Photographs by Graham Charles unless otherwise stated.

as a gift from a friend. For example, more and more pots filled with Lithops, Agaves and Andromischus were placed on the windowsill. At first these plants didn't bring me much, but the enthusiasm with which this friend could talk about his succulents also aroused the interest in me. At that time, the dealer Ramak was standing at the Rotterdam weekly market, with a large selection of cacti and succulents. For someone who had just been infected with the cactus virus, this was a reason to drop by there every Saturday and go home with new plants. The cactus friend and I scoured all the garden centres in the area and also delved more into the literature. We found out that



Figure 1. The magnificent DeHerdt collection in 1983.



Figure 2. The private collection and plants for seed production were housed in a plastic greenhouse in the early 1970s before being moved.



Figure 3. Cyriel DeHerdt and Derek Castle from Birmingham, UK, in the plastic greenhouse, 1970s.



Figure 4. Elisabeth Owens admiring the amazing plants in 1983, before she became Mrs Elisabeth Charles.

there were large nurseries that specialised entirely in our favourite plants.

At weekends we ended up at Frans Noltee in Dordrecht, Hans Biesheuvel in Lakerveld, Cok Grootsholten in Honselersdijk and Van Donkelaar in Werkendam. Frans Noltee had arranged his plants in alphabetical order, especially the mammillarias had my attention here. There was a large selection here, from *M. albilanata* to *M. zeilmanniana*, but also more difficult species that you hardly see nowadays, like *M. solisoides* and *M. herrerae*. Except for the Biesheuvel nursery, they have all now unfortunately disappeared....

On one good day, our journey took us across the border to Rijkevorsel, where we discovered the address of three brothers who owned a nursery selling very special plants. And we were definitely not disappointed!



Figure 5. Cyriel DeHerdt (left) with Alfons Beukelaers (Mr. Astrophytum) and his wife Adrienne. Note Alfons' NCSS tie! 1983.

When we entered the nursery of the De Herdt brothers, we found an enormous amount of mammillarias, which were sold at really very reasonable prices. Many plants, to my surprise, had the name *M. deherdtiana* on the label. As an inexperienced enthusiast I didn't immediately make the connection to "De Herdt" at that time, I did not know this species yet. Almost identical looking plants bore the name *M. dodsonii*. Of course I went home with several specimens of both species.

Wolter ten Hoeve explained the history of these plants in *Succulenta*. Fritz Schwarz discovered an unknown cactus in Oaxaca in 1959. A few years after the discovery he collected about 200 plants, of which 80 survived. He sent these to Belgium, to the De Herdt brothers. 50 did not survive the crossing to Europe. Ten years later the plant was

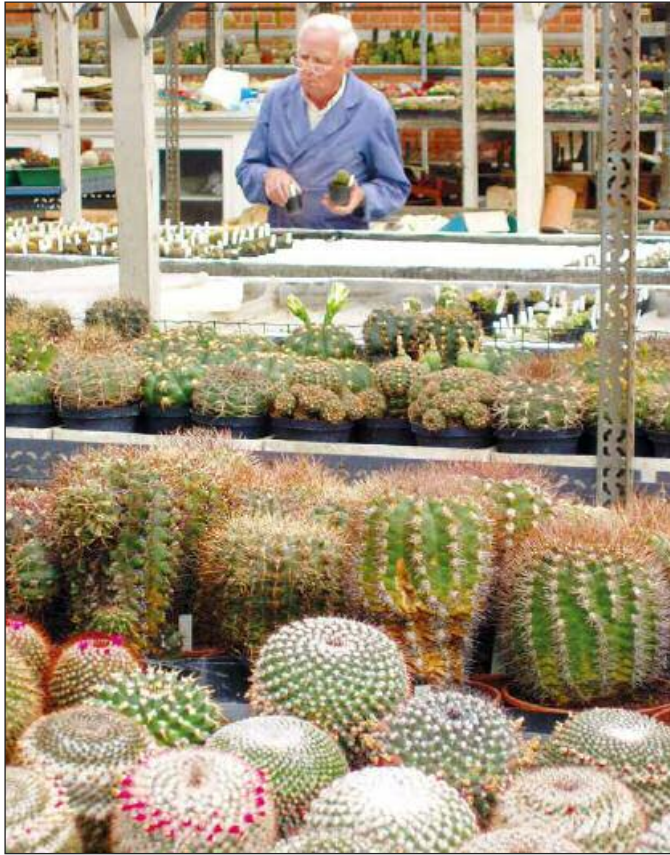


Figure 6. Georges DeHerdt worked on the sales side of the business (2004).
Photograph: Tom Twijnstra.

described by Farwig as *Mammillaria deherdtiana*, a tribute to the brothers who skilfully reproduced this species.

One year after the description of *Mammillaria deherdtiana*, Helia Bravo-Hollis described *Mammillaria dodsonii* in the Mexican Cactus Journal. This species was found in 1969 at an altitude of 3000 metres by Thomas MacDougall on the Cerro de San Felipe del Agua north of the capital Oaxaca. This 3300m high mountain is 50 kilometres as the crow flies from where *M. deherdtiana* was found. Bravo received specimens of this plant from a certain Jay Dodson. Bravo also precisely points out the differences between *M. deherdtiana* and *M. dodsonii* in her publication. She also mentions that MacDougall found this species as early as 1956 near Benito Juárez at an altitude of 3000 metres. This is exactly the environment where populations of *M. dodsonii* are found today. And these sites are even closer to where *M. deherdtiana* was found. In 1979, Glass and Foster created the new combination *M. deherdtiana* var. *dodsonii*. David Hunt later made *M. deherdtiana* ssp. *dodsonii*



Figure 7. Georges DeHerdt packed the plants bought by visitors to the nursery (2009).
Photograph: Tom Twijnstra.



Figure 8. *Mammillaria* plants used for the production of seeds (2009).
Photograph: Tom Twijnstra.

out of it. Reppenhagen considered *M. dodsonii* as a synonym of *M. deherdtiana*. From this we can conclude that *M. dodsonii* grows at a much greater altitude than *M. deherdtiana* and therefore has a denser spine cover to protect it from sun and frost.

So much for the history. Two brothers ran the nursery. Georges, always in a grey-blue work coat, was in sales and always wrote labels, and Cyriel was the man who was busy pollinating the flowers of the mother plants. Both men spoke with a strong Flemish accent that was difficult for us Dutch to understand. I subsequently contacted several people who I thought could tell me more about the brothers' lives, unfortunately with very little result.

I learn more from an article by Gerard Rutten in *Succulenta*. Cyriel bought his first grafted cactus at the age of 14 at the 'Vogeltjesmarkt' in Antwerp, probably from the nursery De Laet. Before the cactus bug took



Figure 9. Cyriel DeHerdt photographed in his glasshouse in 2018.

hold of the other brothers, they performed as musicians at parties and dances. The cactus hobby became a real passion and the nursery was born. On the outskirts of Rijkevorsel, a town in the province of Antwerp, a large greenhouse with an adjoining home was put into operation.

In the 60s, 70s and 80s of the last century, buses full of enthusiasts came there on Saturdays to talk to like-minded people and expand their collections. The brothers were in contact with big names from the cactus world. Correspondence was maintained with Backeberg, Lau, Schwarz, Benson, Cárdenas, Ritter, Krainz and Knize, among others.

Many cacti were sent to the brothers with the request to propagate them. Some of these people visited the nursery to see what others had found. We never saw the third brother, I don't know when he died. The private collection, locked with a chain, was a feast for the eyes even from outside. In the presence of Georges, the chain was removed and the collection could be entered and admired. Beautifully tended plants, several of each

species, most of which were used for seed production.

Later, when we were familiar guests, we were allowed to look around on our own. Stones and minerals were laid out among the plants, apparently also a hobby of the brothers. Directly under the glass was a very large collection of the genus *Ariocarpus*, as big as children's heads. The "difficult" plants were always grafted. During my many visits I realised that there must be many interesting stories and anecdotes from this place. I planned to interview the brothers in the future to uncover these stories. As is often the case, at some point the individuals are no longer around and the opportunity to learn more is gone forever....

Graham Charles mentions that the brothers received many *Sulcorebutia* from Martin Cárdenas long before they became popular. They were sold without field numbers because they thought they would not be of interest to buyers. Swoboda supplied many Mexican cacti before he left for Bolivia. Many of Lau's plants were used for seed production.

After the old mother plants became less productive, they were replaced by offspring. Besides the possibility to buy plants in the nursery, there was also the possibility to order seeds. Every year a catalogue appeared with a huge selection of special species. During one of my visits, my eyes fell on seeds labelled "*Mammillaria dixanthocentron* var. *rubripina*". I sowed the seed. Unfortunately, only one plant still exists and it is still relatively small. I only know this name from the description as *M. dixanthocentron* var. *rubripina* by R. Wolf in *KuaS* 38(2):46–77 (1987). I have not seen plants under this name in collections anywhere else, nor have seeds with this name been offered anywhere. Does anyone else have such plants in their collection? By the time I was struck by the cactus bug, the general interest in cacti and succulents had already waned.

No more buses came on Saturdays and individual visitors were also diminishing. This was by no means an obstacle for the De Herdt brothers to continue being motivated. Talks were held about the latest cactus discoveries. They were among the first to have some specimens of *M. perezdelarosae* subsp. *andersonii*. Brother Georges was unimpressed by this new "species" and found the plant "unsightly" and "not worth propagating". Moreover, we were often accused that the Dutch were bad growers. "You put a two centimetre lophophora in a pot with a diameter of 20 centimetres with potting soil".

At some point Georges' health deteriorated and he eventually had to be admitted to a nursing home, where he soon died. Cyriel was left alone, working literally day and night in the nursery. He was also getting less and less well and soon could no longer live at home. Volunteers (also from the Netherlands) looked after and maintained the collection. Unfortunately, due to travel restrictions because of the COVID-19 virus, it was almost impossible to take care of the collection.

This led to the dissolution of this very special cactus collection, in which many original plants and their pure descendants found their way to enthusiasts all over the world. Cyriel De Herdt passed away on Christmas Day 2020. This was the end of an

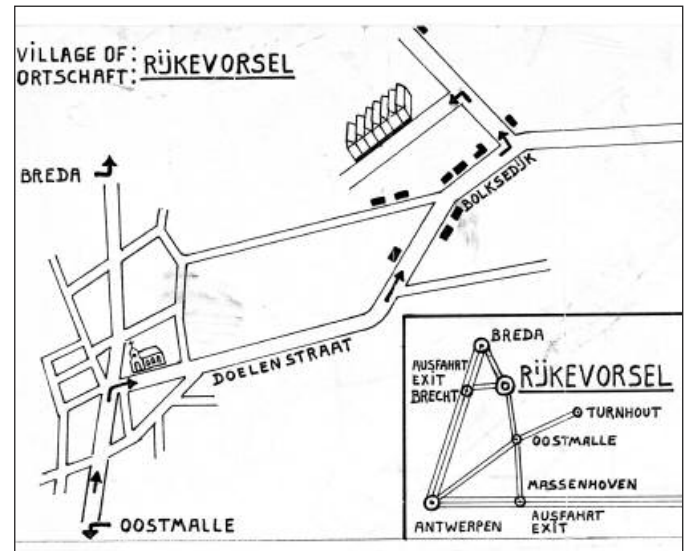


Figure 10. The map the brothers sent to visitors to help them find the nursery.

era....

Thanks to Graham Charles, Gerard Rutten, Wolter ten Hove and Othmar Appenzeller for their help in writing this article and for providing their photographic material.

Literature

- Bravo-Hollis, H. (1970). *Mammillaria dodsonii*. *Cact. Suc. Mex.* **15**: 3–6.
- Farwig, S. (1969). *Mammillaria deherdtiana*, a new species. *Cact. Succ. J. (Los Angeles)* **41**: 27–29.
- ten Hove, Wolter (2021). *Mammillaria deherdtiana*. *Succulenta* **100**(2): 62–67.
- Rutten, Gerard (2021). In memoriam Cyriel De Herdt. *Succulenta* **100**(1): 40–41.
- Taylor, N.P. (1974). In Search of De Herdt. *Cactus & Succulent Journal (GB)* **36**(2): 43.
- Twijnstra, T. (2021). Die schönsten Pflanzen fand man bei De Herdt. *Mammillaria* **45**(4): 194–208.
- Wolf, R. (1987). *Mammillaria dixanthocentron* var. *rubripina*. *Kakt. and. Sukk.* **38**(2): 46–77.
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Editor's Note

I was fortunate to visit the DeHerdt nursery many times in the 1970s and 1980s with the help of their location map (Figure 10). Before my first visit as part of a Coventry Branch trip organized by Warren Withers in the early 1970s, I had bought plants by mail order. The oldest catalogue in my possession is the seedlist of 1965 (Figure 11) which included

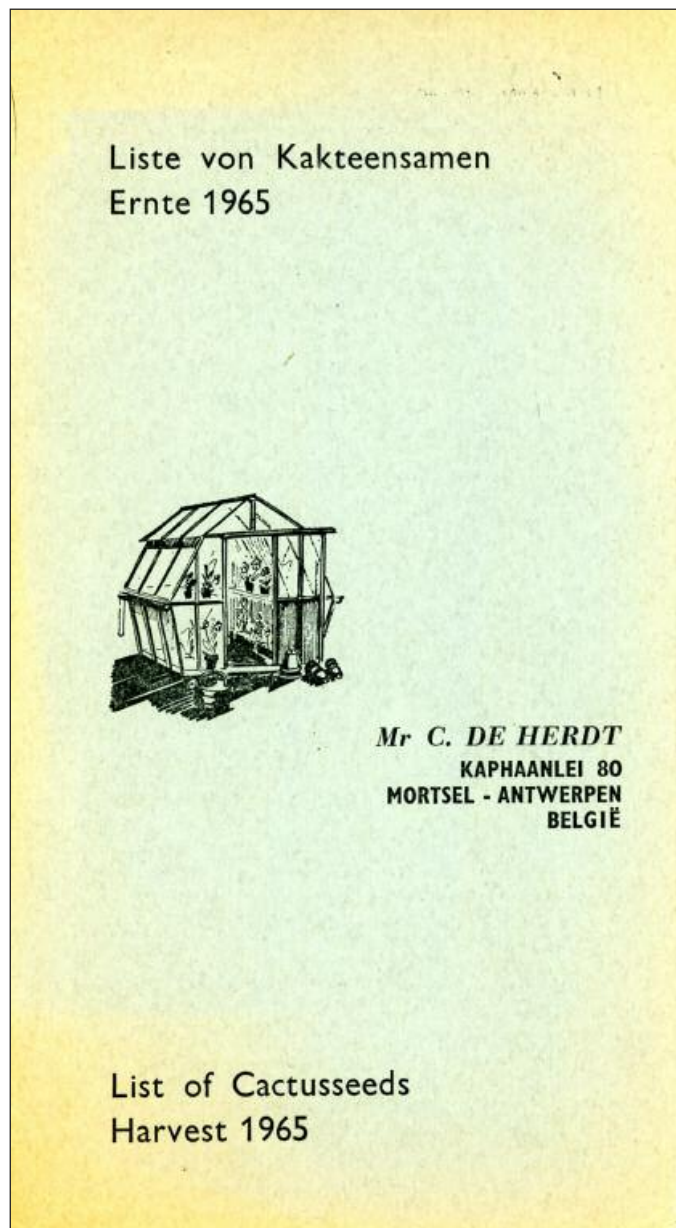


Figure 11. The first seedlist sent to Graham Charles in 1965 when he was 15.

such tempting seeds as *Pilocopiapoa solaris* at 14d for 10 seeds.

There were separate lists of cactus seedlings, the one from 1966 offering seedlings at 1s. 2d. to 1s. 9d. Then there was the list of grafted cacti which included many species that were rarely available in 1966, priced at just 4s. 4d. This was the first time I had been offered sulcorebutias which were new to growers at the time, DeHerdt obtaining his plants from Martin Cárdenas in Bolivia.

Plant lists continued until at least 1972 and some included offers of imported plants from as little as 60p each. After 1966, the seedlists were published as multi-page catalogues illustrated with many black and white pictures



Figure 12. The multi-lingual seedlists with many black & white pictures of choice cacti that were published between 1966 and 2003.

of plants (Figure 12). In 1976, the postal address changed from the one in Mortsel to the nursery at Rijkevorsel. As before, the plant descriptions were presented in Flemish, German and English.

DeHerdt offered seeds of the most desirable species and they had a reputation for good germination. They were supplied in small folded clear envelopes with a typed label. I looked forward to receiving the seedlist every year with its pictures of the most interesting plants of the time. I kept them and the last I have is from 2003.

I have very fond memories of my visits and the influence they had on my enjoyment of the hobby. I had no idea how spectacular cacti in cultivation could be and I was inspired to grow my plants better. How fortunate I was to meet Cyriel for the last time in 2018 (Figure 9) when he again demonstrated his gentle character and self-taught linguistic skill. It is indeed the end of an era, a series of events in our hobby that will never be repeated. I hope this article will serve as a tribute to the skill of the DeHerdt brothers.

Graham Charles

WHAT IS *COPIAPOA BRIDGESII* (PFEIFF.) BACKEB. ?

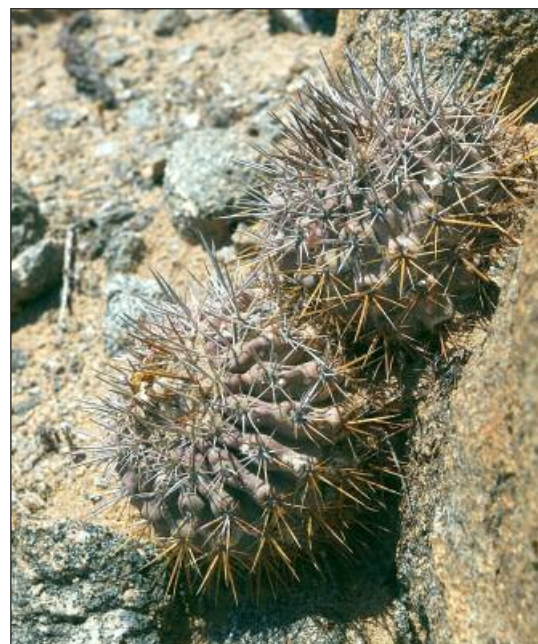
Grzegorz F. Matuszewski explains his conclusions about the attribution of some old names in *Copiapoa*.
Photos by the author



Figure 1. *Copiapoa echinoides*. Caleta Totoral Bajo, Chile.



Figure 2. *Copiapoa echinoides*. Llanos de Challe, Chile.



Figures 3 & 4. *Copiapoa echinoides nana*. Caleta Totoral Bajo, Chile.

Coming north from Huasco, we will surely come across plants known as *Copiapoa echinoides* (Lem. ex Salm-Dyck) Britton & Rose. This plant was described back in 1845 as *Echinocactus echinoides* Lem. ex Salm-Dyck. Its synonyms are *Copiapoa cuprea* F.Ritter, *C. cupreata* (Poselg. ex Rümpler) Backeb., *C. dura*

F.Ritter and *C. macrantha* (Lawr.) Meregallii. The range of occurrence of *C. echinoides* is an area of coastal mountains extending to about 80km from Huasco to Bahia Salado. Northern populations are also known as *C. echinoides* `nana`.



Figure 5. *Copiapoa marginata*. Morro Copiapo, Chile.



Figure 6. *Copiapoa bridgesii*. Chañaral, Chile.

Driving about 50km to the north we will see a rather similar growing *Copiapoa marginata* (Salm-Dyck) Britton & Rose, originally described in 1845 as *Echinocactus marginatus* Salm-Dyck. Sometimes known by the synonym *C. streptocaulon* (Hook.) Oosten. The site extends in the coastal mountains from

Morro Copiapo to Chañaral for approximately 85km.

Almost 2km further north, the location also begins in the coastal mountains for *Copiapoa bridgesii* (Pfeiff.) Backeb., the basis of which was described in 1847 as *Echinocactus bridgesii* Pfeiff. This area of distribution extends about 20km to the north as far as Pan de Azucar.

When comparing plants, we find great similarity between *C. bridgesii* and *C. marginata*, whose locations are almost continuous. *C. echinoides*, despite a somewhat similar type of growth, however, it is easily distinguishable from both of the above.

In 1999, Govaerts R. classified in the study World Checklist of Seed Plants 3 (1, 2a & 2b): 1-1532. MIM, Deurne *Copiapoa bridgesii* as a synonym *C. echinoides*.

A 2015 study was published by Isabel Larridon *et al.* – An integrative approach to



Figure 7. *Copiapoa marginata*. Puerto Viejo, Chile



Figures 8 & 9. *Copiapoa bridgesii*. Chanaral, Chile.

understanding the evolution and diversity of *Copiapoa* (Cactaceae), a threatened endemic Chilean genus from the Atacama Desert published in the American Journal of Botany shows that *Copiapoa echinoides* is not closely related to *C. marginata*, because they are in completely different groups. The affinity of *C.*

bridgesii was not investigated in the study, probably due to its earlier synonymy with *C. echinoides*.

I don't want to prejudge whether *C. bridgesii* is synonymous with *C. marginata* or its subspecies, but I absolutely disagree with

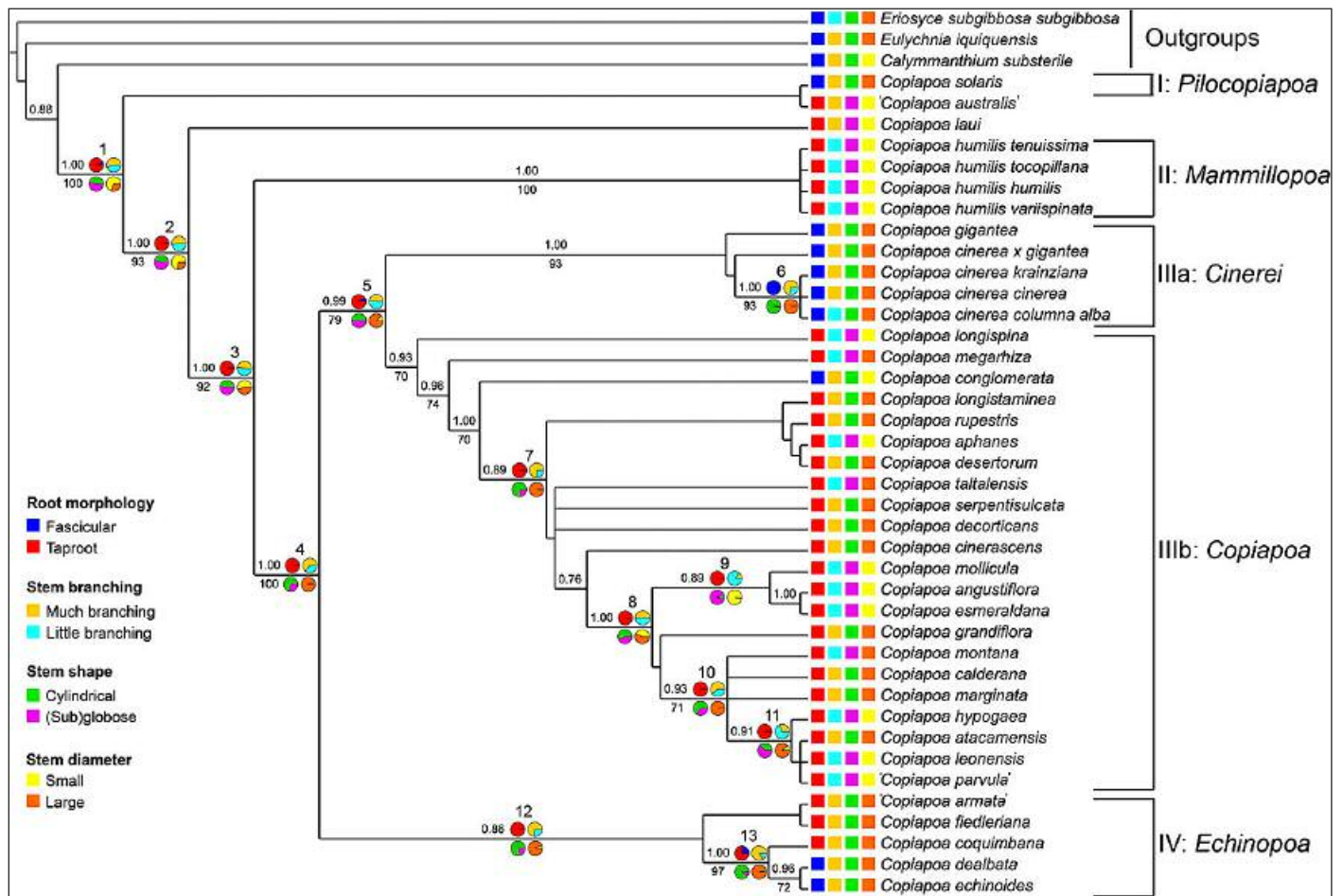


Figure 10 Three-locus plastid phylogenetic hypothesis of *Copiapoa* based on a reduced sampling alignment of 42 accessions from Larridon, I. *et al.* (2015).

classifying it as *C. echinoides*, both for reasons of morphological similarity and the distance of the habitats. It is impossible for a similar-looking plant from a nearby population (only a valley separates them) to be of a different relationship group than the long-distance growing one, and relatively little alike, the more so because the latter separates the first and the third. In my opinion, Rafaël Govaerts made a technical or interpretative error in his research, although it is most likely he worked with the wrong botanical material.

References

Anderson, E.F. (2001). *The Cactus Family*.
 Hunt, D. (1999). *Cites Cactaceae Checklist*. 2nd edition.
 Hunt, D. (2016). *Cites Cactaceae Checklist*. 3rd edition
 Kattermann, F. (2018). Molecular study of the genus *Copiapoa* (Cactaceae). *Cactus & Succulent Journal (US)* **90**(4): 284.

Larridon, I. *et al.* (2015). An integrative approach to understanding the evolution and diversity of *Copiapoa* (Cactaceae), a threatened endemic Chilean genus from the Atacama Desert. *American Journal of Botany*.
 Lembecke, H. (1966). *Copiapoa conglomerata* (Phil.) comb. nov. *Kakteen und andere Sukkulente* **17**(2): 29–31.
 Lodé, J. (2015). *Taxonomy of the Cactaceae*.
 Middleditch, H. (2011). *The Chileans* **22**(70): 2–11.
 Philippi, R. (1890). *Florula Atacamensis*.
 Ritter, F. (1980). *Kakteen in Südamerika* Band 3.
 Schulz, R. & Kapitany, A. (1996). *Copiapoa In their environment*.
 Schulz, R. (2006). *Copiapoa 2006*.

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WHICH CACTUS SPECIES HAS THE LONGEST SPINES?

Paul Hoxey reviews published records of long spines and compares these with his own experiences of finding them in habitat.

Photographs by the author.

Very little has been written about very long cactus spines but Britton & Rose (1920: 182) suggested that *Neoraimondia macrostibas* (now considered to be a synonym of *N. arequipensis*) has the longest spines. They state "The elongated spines (24cm long) are the longest we have seen in any cacti". They continue "*Cereus jamacaru* is reported to have spines 30cm long, but the longest we have measured were only 19cm long". The lower limit seems likely as Taylor & Zappi (2004: 278) only give a maximum length of 15cm for *Cereus jamacaru*.

Backeberg (1959: 874) is in agreement with

Britton & Rose stating that the spines of *N. arequipensis* can reach 25cm long. He may have observed the plants himself although he could have just copied the information supplied by Britton & Rose.

My own experience of *N. arequipensis* is that the plants can have long spines but I have not found plants with spines as long as reported by Britton & Rose and Backeberg. The spination of this species is very variable. Some stems have long spines (Fig. 1) but often plants produce very short spines or none at all on flowering areoles (Fig. 2). The largest spines I



Figures 1 & 2. *Neoraimondia arequipensis* from Río Pisco, Peru (PH1107.04) with long but variable spination.



Figure 3. *Browningia candelaris* from Chala Viejo, Peru (PH1635.06) with extremely long spines on the trunk reaching 25cm long.



Figure 4 *Browningia candelaris* from Chala Viejo, Peru (PH1635.06) with extremely long spines on the trunk reaching 25cm long.



Figure 5. *Leptocereus paniculatus* (PH1288.01, Haiti) with clusters of long spines on the trunk.

have noted are 15cm long although lengths exceeding this are certainly likely.

Another species, also from Peru, which can have very long spines is *Browningia candelaris*. This cereoid has two distinct types of



Figure 6. *Armatocereus procerus* from Río Pisco, Peru (PH1107.01) with a densely spined trunk

spination. The unbranched trunk is densely covered in strong spines. At a certain point the spination changes abruptly to very short almost hair-like spines. They can appear absent unless the plant is examined closely. The plant also starts to form new branches at this point, producing a tree-like structure (Fig. 3). Flowers only ever occur on the weakly spined branches. The trunk with extreme age becomes woody and the spine clusters can fall off but can also stay attached for a considerable time and continue to grow new spines. Large mature plants are possibly centuries old but areoles on the trunk are still capable of producing new and extremely long spines. From my personal observations, spines on the trunk can reach about 25cm in length, with one such example illustrated here (Fig. 4) near to Chala.

Browningia candelaris is no means unique in



Figure 7. *Cumulopuntia echinacea* from east of Chusmiza, Chile (PH1214.01) growing as clumps densely covered with long spines.

having very long spines on the trunk. *Leptocereus paniculatus*, an endemic tree-cactus from the island of Hispaniola also develops a woody trunk with age including strong spination (Fig. 5). Similarly, *Armatocereus procerus* (Fig. 6) from Perú can also have long spination on the trunk. Unfortunately, I haven't made any detailed measurements of either species in habitat but I estimate spines reach at least 15cm long, perhaps more.

Corryocactus brevistylus, a cereoid species found in southern Peru and northern Chile is another candidate for the species with the longest spines with Britton & Rose (1920: 66–67) stating the spines can reach 24cm long. This is a very widespread species and during fieldwork in southern Peru in 2005 I found plants inland from Chala in the department of Arequipa with very long spines reaching an estimated 25cm long. Ritter (1980: 905) also states that the spines reach 25cm long but then goes on to mention he found plants at Puquios (Depart. Arica) which had spines that reached 45cm in length. I believe the locality "Puquios"

is Estación Puquios on the railway inland from Arica at S18°10'30" W69°44'40". Ritter gave this collection his number FR122A and this locality is identified in Eggli *et al* (1995: 115) as Loc. 1 dated December 1953. Eggli suggests that the locality is the town of Puquio in Ayacucho, Peru but I believe this is incorrect. Ritter's itinerary (Eggli 1995: 15) also supports the Chilean origin of this material because he was in northern Chile in December 1953.

Ritter sent some examples of the very long spines to Herrn Krainz at the Städtische Sukkulentsammlung in Zürich, Switzerland. And today, in the herbarium, is a specimen (ZSS-004511) which belongs to this collection and is available to view online (<https://www.herbarien.uzh.ch/en/belegsuche.html>). The sheet consists of a single areole and spine cluster and the longest spine is approximately 36cm long. A close examination of the image appears to show the spine tip has been broken off so it may have been longer.

Very long spines are not only restricted to

large growing cereoid cacti. In Opuntioideae, *Cumulopuntia echinacea* stands out as having extremely long spination. Ritter (1980: 884) reports that spines can reach 26cm long. Clumps of this species are extremely spiny (Fig. 7) and I have found specimens in northern Chile with spines reaching 20cm long, making Ritter's observations likely in extreme cases.

The above four species are all found in southern Peru or northern Chile. That may be because the environment there is conducive to long spine development or it could be a biased list due to my knowledge of the plants in the region. To balance things up a little I need to mention *Ferocactus rectispinus* (*F. emoryi* subsp. *rectispinus*) (Fig. 8) from Baja California which is another species reported to have very long spines. In the original description Coulter

(1896: 362) says, when describing the spines: "the central very long (30 to 32cm)" but Britton & Rose (1922: 134) are doubtful and quote a maximum length of 13cm long. However, sources such as Unger (1992: 270), Lindsay (1996: 203) and Pilbeam & Bowdery (2005: 43) all state that spines can reach 25cm long with Gates (1931: 391) confirming this from his first hand experience saying "My most prized spine is 10¼inches, which is between 26 and 27cm long".

So which of these species has the longest spines? It appears *Corryocactus brevistylus* is the front runner with spines confirmed to reach 36cm and possibly as much as 45cm long. All the others (*Neoraimondia arequipensis*, *Browningia candelaris*, *Cumulopuntia echinacea* and *Ferocactus rectispinus*) do not appear to exceed 25cm long.



Figure 8. *Ferocactus rectispinus* from Bahía Concepción, Mexico. A young plant showing promising spine development.

Photograph: Aldo Delladdio.



Figure 9. *Corryocactus brevistylus* from inland from Chala, Peru (PH1800.05), the plant with 40cm long spines



Figure 10. *Corryocactus brevistylus* from inland from Chala, Peru (PH1800.05), the plant with 40cm long spines

In March 2020 I returned to the population of the long spined *Corryocactus brevistylus* inland from Chala and remembering my visit there in 2005 I made an effort to examine specimens for extremely long spines. With a little searching I encountered the plant illustrated here (Fig. 9). It won't win any prizes for beauty and would have been ignored but for the fact it has extremely long spines especially on the lower parts of the main stem. The longest, exactly 40cm long nearly matches Ritter's record. Fortunately, I had a tape measure to hand to accurately record the length (Fig 10).

Presently we have to give *Corryocactus brevistylus* the award for producing the world's longest cactus spines but surely there will be specimens of other species out there with exceptional spination. Large cereoid cacti with the ability to produce spines on old woody trunks are likely to be a good place to look. Spination is strongly determined by environmental conditions, especially exposure to sunlight but genetics must play a part too. I suspect the habitat at Estación Puquios, as well as my locality inland from Chala, are particularly good for long spine development, having strong sunshine, very low rainfall and fairly high elevation.

Just like in **Cactus Explorer** 16 when I set the challenge to find extremely high elevation cacti I would very much like to hear of anybody who can break my record of a 40cm long cactus spine. Good luck in your search!

References

- Backeberg, C. (1958–1962) *Die Cactaceae, Handbuch der Kakteenkunde*. Gustav Fischer Verlag, Jena.
- Britton, N.L. & Rose, J.N. (1920) *The Cactaceae. Descriptions and illustrations of plants of the cactus family*, Vol. 2. Carnegie Institute, Washington.
- Britton, N.L. & Rose, J.N. (1922) *The Cactaceae. Descriptions and illustrations of plants of the cactus family*, Vol. 3. Carnegie Institute, Washington.
- Coulter, J.M. (1896) Preliminary revision of the North American species of *Echinocactus*, *Cereus*, and *Opuntia*. *Contributions from the U.S. National Herbarium* 3(7): 355–462.
- Eggl, U., Muñoz Schick, M., & Leuenberger, B. E. (1995). Cactaceae of South America: The Ritter Collections *Englera* 16: 1–646.
- Gates, H.E. (1931) *Ferocactus rectispinus* *Cactus and Succulent Journal (US)* 2(7): 390–391.
- Lindsay, G. E. & Cota, J. H. (1996) *Taxonomy and ecology of the genus Ferocactus*. Tireless Termites Press.
- Pilbeam, J. & Bowdery, D. (2005) *Ferocactus*. British Cactus & Succulent Society.
- Ritter, F. (1980). *Kakteen in Südamerika*, Band 3. Selbstverlag.
- Taylor, N.P. & Zappi, D.C. (2004) *Cacti of eastern Brazil*. Royal Botanic Gardens, Kew.
- Unger, G. (1992) *Die grossen kugelkakteen Nordamerikas*. Graz, Austria.

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FORGOTTEN CACTUS NAMES FROM LEMAIRE AND MONVILLE

Anton Hofer tells us about the French garden journal *Herbier général de l'amateur* from 1843 in which Lemaire and Monville published nine new names of cacti. All these names have been overlooked by botanists and amateurs. Included were several names that represent the validly published first description of a taxon, causing invalidity of later descriptions accepted until now. Each name is discussed with its significance and consequence for the nomenclature.

Historical background

In the 19th century, in the French language region, there appeared a series of illustrated garden journals for plant enthusiasts, gardeners and botanists. Amongst to the most important are:

- *Revue Horticole* 1829–1974 (Société nationale d'horticulture de France)
- *L'Horticulteur Belge* 1833–1838 (Louis van Houtte & Charles Morren, Scheidweiler)
- *L'Horticulteur Universel* 1839–1847 (Charles Lemaire)
- *L'Horticulteur Français* 1851–1872 (François Hérincq)
- *Flore des Serres et des Jardins de l'Europe* 1845–1880 (Louis van Houtte)
- *Jardin Fleuriste* 1851–1854 (Charles Lemaire)
- *L'Illustration Horticole* 1854–1896 (Ambroise Verschaffelt & Charles Lemaire)
- *L'Horticulteur Praticien* 1857–1862 (Henri Guillaume Galeotti)

Due to their scientific descriptions of new plants, most of these journals had a big following, not only by rich plant amateurs, but also by scientific botanists. Common to several of them was, that Charles Antoine Lemaire (1800–1871) published his articles in them or he was their editor. For some of them he was even the founder. Several of them were published by famous nurseries so, their novelties could be published and advertised. Still today these journals are extremely in demand and therefore high priced in auctions.

One series of journals appeared during about 34 years under different titles. It belongs

to the first Plant and Gardening Journals of Europe:

- *L'Herbier général de l'amateur*. 8 vols. 1817–1827
- *L'Herbier de l'amateur de fleurs*. 8 vols. 1828–1835
- *Nouvel herbier de l'amateur*. 1 vol. 1838
- *L'Herbier général de l'amateur, deuxième série*. 5 vols. 1839–1850.

Vols. 2–4 have been reprinted in the years 1841–1848 and a 5th vol. was added in 1849–1850 (without volume indication).

These journals didn't have a wide distribution, especially in the last years. A reason perhaps was that the content consisted in great part of reprinted articles from other journals, mainly German and British.

The editor for the volumes 2–4 of the second series (1841–1844) was Lemaire. Beside the wonderful pictures with their descriptions, he also published botanical articles. They were grouped in special chapters under the title "Miscellanés Botaniques" with separate pagination. Lemaire and Hippolyte Boissel de Monville, in vol.3 (1843), published 9 new cactus (Cactaceae) names with Latin descriptions. For inexplicable reasons, these names remained unknown to taxonomists until today. Most of them do not appear in IPNI (2017) with the correct author and reference.

As the names appeared in a journal, it is not possible to determine the exact date of publication, but it is clear that it was during the year 1843. The title page for the whole year was joined to the end of issues.



Figure 1. *Ferocactus flavovirens* west of Tehuacán, Puebla, Mexico.

Photograph: G. Charles

One can assume that Joseph Franz Maria Anton Hubert Ignatz Fürst und Altgraf zu Salm-Reifferscheidt-Dyck was not aware of this publication. Many of these names figured in his *Cact. Hort. Dyck*. (Salm-Dyck 1845a & 1850). For some of them he provided a description and, since then, they have been treated as the first description and basionym for new combinations.

Lemaire and Monville

Charles Antoine Lemaire (1800–1871) was a French botanist and author with a particular interest in the cactus family. For various periods he was editor of different garden journals. In this role he also worked for Verschaffelt and van Houtte, describing their novelties. In this time, he was THE CACTUS EXPERT in French speaking Europe. He had excellent relations with prince Joseph Salm-Reifferscheidt-Dyck who visited him in Paris nearly every year. Unfortunately, he passed away before he finished his monumental work

Cactacearum Monographiae Tentamen.

Baron Hippolyte Boissel de Monville (1794–1863) was a French owner of spinning mills in the region of Rouen, France. He collected cacti and accumulated probably the biggest private collection of that time. He acquired plants from professional field collectors but also from nurseries like Cels. For scientists like Lemaire, the collection was a treasure trove of new, undescribed plants. Apart from different articles, Lemaire wrote two booklets about the Monville plants (Lemaire, 1838 & 1839). In journals where Lemaire was editor, Monville also published articles. He lost his spinning mills in consequence of a violent thunderstorm in August 1845, but not his plant collection. This was sold by auction in 1846 (Monville, 1846). He is commemorated by the genus *Monvillea* Britton & Rose and by *Gymnocalycium monvillei* (Lem.) Britton & Rose.



Figure 2. *Strombocactus disciformis* growing on calcareous tufa rock (travertine).

Photograph: Anton Hofer

The nine cactus names from *Herbier général de l'amateur deuxième série, tome 3* (1843).

Apart from the numbered plates with their descriptions, the volume contains a separate chapter "Miscellanées Botaniques" (Misc.) with separate pagination.

Description of a new *Echinocactus*. Misc. 2–3.

Echinocactus poliocentrus Lem. *nom. inval.* ICN Art. 52.1 (Turland, 2018).

Herb. Gén. Amateur 2. sér. 3: misc. 2–3 (1843).
Type: Mexico, cult. Monville.

Lemaire describes a half dead plant from the collection of Monville and adds a question mark to the "body colour green". As a synonym he included *E. flavo-virens* Scheidw., described two years before, with the reason that the colour of a half dead plant (yellow-green) was inaccurate for a name. Moreover, following the description, the plant was not very frequent.

Förster mentions the name as a synonym of *E. flavo-virens* Lem. (Förster, 1846: 329).

There is no doubt, that Lemaire redescribed *Echinocactus flavovirens* Scheidw., today *Ferocactus flavovirens* (Scheidw.) Britton & Rose, and included it as a synonym, which meant that his name is illegitimate. The name is validly published, but the name cannot be used because it includes the earlier name *E. flavovirens*, and is thus superfluous (Figure 1).

New species of *Echinocactus*. Misc. 14–15.

Echinocactus helianthodiscus Lem.

Herb. Gén. Amateur 2. sér. 3: misc. 14–15 (1843).

Typus: Mexico, cult. Odier, Bellvue, Paris.

Lemaire himself later ascribes it as a synonym of *Echinocactus turbiniformis* Pfeiff. (l.c. Misc. 43). This in turn is a synonym of *Strombocactus disciformis* (DC.) Britton & Rose, where the name belongs. This name is validly published, but happens to be a redescription of the earlier *Mammillaria disciformis* DC. (De Candolle, 1828). So it is a synonym of De Candolle's name (Figure 2).

New species of the cacti family, by M. B. de Monville. Misc. 41–43.

Echinocactus neumannianus Monv.

Herb. Gén. Amateur 2. sér. 3: misc. 41 (1843).

Typus: Chile, Anonymus s.n., s.d. cult.
Neumann 1839.

Dedicated to Joseph Henri François Neumann (1800–1858). He was head gardener in the warm houses of the Muséum d'histoire naturelle Paris.

Monville compares it with *E. centeterius* Lehm. and *E. mackieanus* Hook.

The name appeared later in the Cels catalogue, but ascribed to Lemaire (Cels, 1844: 4).

Salm-Dyck (1845a: 18) listed it first as a species under *Echinocactus* Sectio II. hybogoni, together with the var. *rigidior* nob. In the new edition (1850: 33) he places it as synonym of *E. kunzei* C.F.Först., and changes the author to Cels.

Echinocactus neumannianus Cels ex Labour. (sphalm as *neumanianus*) in *Monogr. Cact.* 245 (1853) is a redescription of this taxon. Out of ignorance of Monville's publication, for a long time this has been regarded as the first description of the name.

There is no doubt, that *E. neumannianus* Monv. and *E. kunzei* C.F.Först. (as *kunzii*) are conspecific and that *E. neumannianus* Monv. is the oldest name for this taxon.

When Fred Kattermann (1994: 118) moved *Echinocactus kunzei* to *Eriosyce*, he designated a



Figure 3. *Weingartia neumanniana* MN57 from Humahuaca, Jujuy, Argentina.

Photograph: G. Charles

neotype in conflict with the protologue. Later, Helmut Walter (2008: 21) corrected the mistake and chose a new neotype: Chile, Copiapó, Paipote, Ritter 220 under the name *Pyrrhocactus kunzei* (SGO 21487; ar. sp.).

He states, that this supersedes the neotype designated by Kattermnn. With the new neotype, the species concept of Ritter (1980: 954) is adopted.

The names *E. neumannianus* and *E. kunzei* have inspired so much controversy in the past that it is advisable to follow Hunt (2003: 10, 2006: 109) and not use these names anymore.

Not *Echinocactus neumannianus* Backeb. in *Kakteen-Freund* 2(8): 90 (1933) *nom. illeg. art.* 52.1 (Turland, 2018). Considered to be later homonym of *Echinocactus neumanianus* Cels ex Labour. Named in honour of the cactus grower Hans Neumann from Berlin.

Indigenous name: Achacana de guanaco. Achacana is a cactus with edible roots.

Backeberg later transferred it to his invalid genus *Spegazzinia* Backeb. (non *Spegazzinia* Saccardo, 1879)

Spegazzinia neumanniana Backeb., *Blätt. Kakteenf.* 1934, Pt. 4, [p. 3], in obs.; *Blätt. Kakteenf.* 1935, Pt. 12, [p. 4]; Backeb. & F. M. Knuth, *Kaktus ABC*: 299, 417(1935) *nom. incorr.* (Art. 11.4). New name based on the description and type of Backeberg (1933). Genus illegitimate.

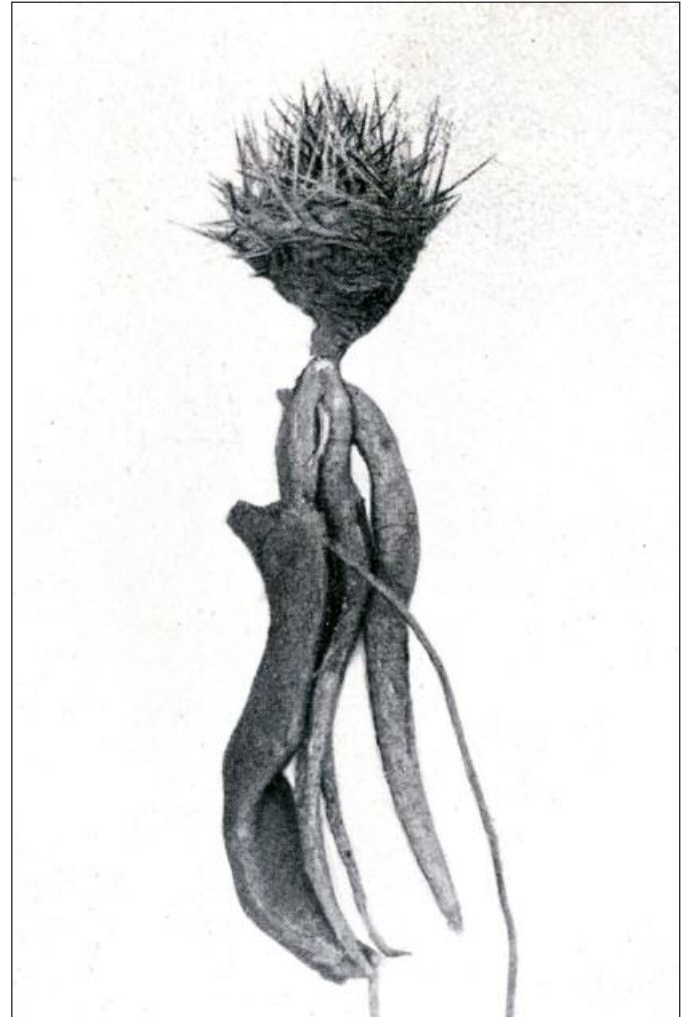


Figure 4. Lectotype illustration of *Rebutia neumanniana* (Werderm.) D.R.Hunt from *Kakteen-Freund* 2(8): 90 (1933).

Erich Werdermann noticed the invalidity of Backeberg's genus *Spegazzinia* and renamed the genus *Weingartia* Werderm. Then he transferred the species to *Weingartia neumanniana* Werderm., *Kakteenkunde* 1937: 21 (1937) New name based on the description and type of Backeberg (1933). This is the first valid name for the taxon (Figure 3).

Later it was moved to *Gymnocalycium* and finally to *Rebutia*.

Gymnocalycium neumannianum (Werderm.) Hutchison. *Cact. Succ. J. (US)* 29(1): 11 (1957).

Rebutia neumanniana (Werderm.) D.R.Hunt, *Bradleya* 5: 94 (1987). Lectotype: *Kakteen-Freund* 2(8): 90, photograph (1933). Published illustration, designated by Mats Hjertson, *Cactaceae Syst. Init.* 19: 22. (2005) (Figure 4).



Figure 5. *Echinopsis leucantha* GC225.04 from south of Cacheuta, Mendoza, Argentina. Photograph: G. Charles

Echinopsis jamesiana Monv.
Herb. Gén. Amateur 2. sér. 3: misc. 42 (1843).
 Typus: "Buenos-Ayres" (i.e. Argentina), in cult. James Courant, Gratiae-Portani (Le Havre).

In his description, Monville compares it with "*Echinopsis decaisneana* Lem." [*Echinopsis decaisneana* (Lem.) Walp.].

Salm-Dyck (1850: 38) mentions the name as synonym of "*Echinopsis descaisniana* Lem." All these names are to be considered as synonyms of *Echinopsis oxygona* (Link) Zucc. ex Pfeiff.

Echinopsis valida Monv.
Herb. Gén. Amateur 2. sér. 3: misc. 42 (1843).
 Typus: unknown origin ex cult. Courant.

Monville compares it with *E. zuccariniana* Pfeiff. ex A.Dietr. (*E. tubiflora*) and *E. campylacantha* Pfeiff. (*E. leucantha*).

Salm-Dyck (1845a: 26) lists the name as an independent species and supplies a new description (1850: 181) which is erroneously cited by later authors as the basionym for the taxon.

The description of Monville fairly fits with *Echinopsis leucantha* (Gillies ex Salm-Dyck) Walpers (Figure 5) and could easily be a synonym of it. This cannot be confirmed with certainty and the name must be designated as unresolved.

Excluded from this taxon is *Echinopsis valida* var. *densa* Regel (1852). This is a synonym of *Echinocereus acifer* (Otto ex Salm-Dyck) Haage.

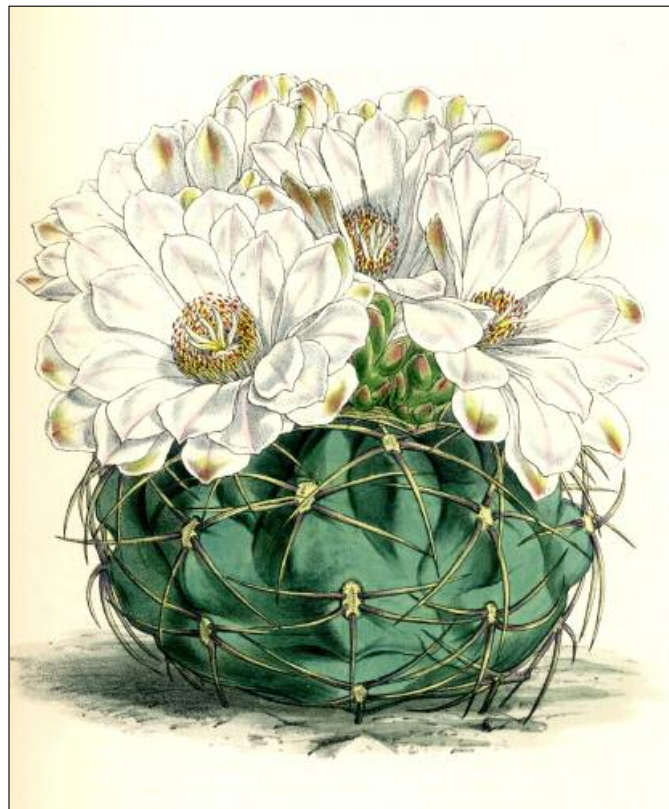


Figure 6. The Neotype of *Echinocactus ourselianus*: Plate 4181 by W.H. Fitch in *Curtis's Bot. Mag.* Vol. 71 (1845).

Echinocactus ourselianus Monv.
Herb. Gén. Amateur 2. sér. 3: misc. 42–43 (1843).
 Typus: Montevideo (i.e. Uruguay) ex cult. Courant.

Monville compares it with *E. monvillei* (as *monvillii*) Lem. and *E. hyptiacanthus* Lem.

Salm-Dyck (1850: 34) changes the author to Cels and lists it as synonym of *E. multiflorus* Hook.

On my request for identification, Wolfgang Papsch made an extensive research and published the results with the new combination *Gymnocalycium ourselianum* (Monv.) Papsch (Papsch, 2018).

In the protologue, only a cultivated, not conserved type is indicated and it is not known that a type has been designated and preserved.

Neotypus (designated here): Plate 4181 by W.H. Fitch in *Curtis's Bot. Mag.* 71: t. 4181 (Sept. 1st 1845). Under the name *Echinocactus multiflorus* Hook., a synonym of *E. ourselianus*, the table depicts a flowering plant from the collection of Mr. Palmer of Stockwell near London (Figure 6).



Figure 7. *Lophophora williamsii* PH535.05, Huizache junction, San Luis Potosi, Mexico at 1400m.
Photograph: Paul Hoxey

On some new cactus names. Misc. 43.

Echinocactus williamsianus Lem. nom. rej. prop.
Etymology: Mr. Williams, a very zealous and very distinguished English amateur, with a magnificent collection of Cacti.

Herb. Gén. Amateur 2. sér., 3: misc. 43 (1843).

Typus: Mexico sine loco, not conserved.

Neotypus: Mexico, San Luis Potosí, near El Huizache, 2 Jul 1958, *Anderson* 1079 (POM No. 298103 [RSA barcode RSA0008867]). (Hofer, 2021).

Lemaire compares it with *E. hexaedrophorus* Lem. and *E. turbiniformis* Pfeiff. (*E. helianthodiscus* Lem.), which it resembles by its humps and general appearance. In Belgian gardens it is called with the common name "pelote".

The Cels brothers (1843: 19, name only) for the first time offered the plant for sale, however under the name *E. williamsii*: 3–5cm for 100–200 francs.

Salm-Dyck redescribes the taxon under the

name *Echinocactus williamsii* Lem. ex Salm-Dyck, *nom. cons. prop.*

Allg. Gartenzeitung (Otto & Dietrich) 13: 385 (1845). with the author name in brackets (Lem. Cat. Cels 1845 sine descriptione). He is referencing the newer catalogue of Cels (1845: 28, [now at 30–75 francs]) and not the description of Lemaire. Since then, the description of Salm-Dyck has been applied wrongly as the basionym for this taxon.

Although there are minor differences between the descriptions from Lemaire and Salm-Dyck, there is no doubt, that they described the same taxon and it is very probable, that they had their plants from the same source: Cels.

John Merle Coulter (1894: 131) based his new genus *Lophophora* on the description of Salm-Dyck. At the same time, he published the new combination *Lophophora williamsii* (Lem. ex Salm-Dyck) J.M. Coult. with the incorrect first author (only Lem.).



Figure 8. *Echinocactus williamsii*, Plate 4296 from Curtis's *Bot. Mag.* Vol. **73** (1847).

The name *Echinocactus williamsii* Salm-Dyck (1845b: 385) is therefore an illegitimate name (ICN Art. 11.4, 52.1) and the genus *Lophophora* Coulter with all taxa based on it are illegitimate (ICN Art. 10.3).

A proposal to conserve the name *Echinocactus williamsii* Lem. ex Salm-Dyck (*Lophophora williamsii*) against *E. williamsianus* has been published (Hofer, 2021).

*Echinocactus pilifer** Lem. [sphalm. *piliferus*] *Herb. Gén. Amateur* 2. sér. 3: misc. 43 (1843).
Typus: Mexico sine loco.

Lemaire compares it with *E. aulacogonus* Lem. and *E. helophorus* Lem., both synonyms of *E. platyacanthus* Link & Otto. The plant existed in Belgian gardens under this name. The plant is characterised unequivocally with the mention of "pilis numerosis" and "aculeis ... laetissime violaceo-rubescenti". Only one *Ferocactus* is known with bristles or hairs on the areoles and dark red spines.

* Detlev Metzger corrected the epithet "*piliferus*" to "*pilifer*" (Unger, 2010) following ICN art. 23.7 (Turland, 2018). See also Stearn, *Bot. Latin*: 91. (1992).

When Gottfried Unger transferred the taxon



Figure 9. *Ferocactus pilifer* PH847.01 South of Parras, Coahuila, Mexico at 1970m.

Photograph: Paul Hoxey.

to *Ferocactus* (Unger, 1986), he was not aware of the description from Lemaire 1843 and he based his new combination on the description from Carl Ehrenberg (1848). The author and the publication of the Basionym have been corrected by Graham Charles in an article (Charles, 2019) in accordance with ICN Art. 41.6 (Turland, 2018).

The correct name and citation for this beautiful species is

Ferocactus pilifer (Lem.) G. Unger *Kakt. and. Sukk.* **37**(2):45 (1986).

Basionym: *Echinocactus pilifer* Lem. [sphalm. *piliferus*]

Herb. Gén. Amateur 2. sér. 3: misc. 43 (1843).

Neotypus: Mexico, San Luis Potosí, 69 miles east (i.e. northeast) of the city of SLP, on road to Antigua Morelos, 4700'. *Lindsay* 2588, 22. March 1955 (DS 374959, Barcode 2429). DS = Dudley Herbarium, Stanford University, California, USA. Designated by G. Unger, *Kugelkakt. Nordamer.*: 163 (1992). This is the same neotype as for *Echinocactus pilosus* Galeotti ex Salm-Dyck (Taylor in *Bradleya* **2**: 35).

The best road from the town San Luis Potosí to Antigua Morelos, at this time, was the MEX-57 northeast to Entronque el Huizache and then on the MEX-80 eastwards. 69 miles on that road is just east of Entronque el Huizache on the MEX-80. There, on Cerros el Pastle, I have seen this taxon on several occasions, at exactly the indicated place.



Figure 10. *Ariocarpus retusus* PH535.13
Huizache junction, San Luis Potosi, Mexico at
1400m. Photograph: Paul Hoxey.

Synonyms:

Echinocactus piliferus Lem. ex C.Ehrenb.
Allg. Gartenzeitung (Otto & Dietrich) **16**(34): 268
(1848).

Echinocactus pilosus Galeotti ex Salm-Dyck.
Cact. Hort. Dyck (1849): 148 (1850).

Ferocactus pilosus (Galeotti ex Salm-Dyck)
Werderm.
Repert. Spec. Nov. Regni Veg. Sonderbeih. C 18:
t. 72 (1933).

Echinocactus pilosus var. *pringlei* J.M.Coult.
Contr. U.S. Natl. Herb. **3**(7): 365 (1896).

Ferocactus pringlei (J.M.Coult.) Britton & Rose.
The Cactaceae (Britton & Rose) **3**: 125 (1922).

Echinocactus piliferus var. *stainesii* (sphalm
stainesii) Salm-Dyck.
Cact. Hort. Dyck. (1849): 149 (1850).

Ferocactus stainesii (Salm-Dyck) Britton & Rose.
The Cactaceae (Britton & Rose) **3**: 124 (1922).

Ferocactus piliferus var. *stainesii* (Salm-Dyck)
G. Unger. *Kakt. and. Sukk.* **34**(2): 45 (1986).

Echinocactus pilosus var. *flavispinus* Hort. ex
Schelle.
Kakteen (Schelle): 188 (1926).

Ferocactus piliferus f. *flavispinus* (Hort. ex
Schelle) G.Unger.
Kakt. and. Sukk. **34**(2): 45 (1986).

Anhalonium pulvilligerum Lem.
Herb. Gén. Amateur **2**. sér. 3: misc. 44 (1843).
Typus: Mexico sine loco.
Etymology: Anhalonium = without areoles,
pulvilligerum = pad wearing (with areoles).

As a synonym, Lemaire mentions (with a
question mark) *Mammillaria alooides* var.
pulvilligerum Monv. and places his plant as
related to *Anhalonium prismaticum* Lem.

Salm-Dyck (1845a: 15) moves it to the
synonymy of his *Anhalonium elongatum* Salm-
Dyck.

In literature, the name has been discussed
very controversially. All these names have to
be considered as in the synonymy of:

Ariocarpus retusus Scheidw. *Bull. Acad. Roy. Sci.
Bruxelles* **5**: 492 (1838).

Acknowledgements

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Literature cited

- Cels frères (1843). *Catalogue des cultures des
frères Cels. Prix courants 1843*. Paris; librairie
Audot. 30 pages.
- Cels frères (1844). *Extrait du catalogue des
cultures des frères. Catalogue des Cactées*. Paris.
Audot, Librairie. 8+20 pages.
- Cels frères (1845). *Extrait du catalogue des
cultures des frères Cels. Prix courant 1845*.
Paris. Librairie Audot. 54 pages.
- Charles, G. J. (2019). Long lost journal found.
Cact. Explor. **24**: 27.
- Coulter, J. M. (1894). Preliminary revision of
the North American species of *Cactus*,
Anhalonium, and *Lophophora*. *Contr. U.S.
Natl. Herb.* **3**(2): 91–132, I-II.
- De Candolle, A. P. (1828). *Revue de la Famille
des Cactées*. Postscriptum. *Mém. Mus. Hist.
Nat.* **17**: 114.
- Ehrenberg, C. A. (1848). Neue und seltene
Cacteen aus Mexico. *Allg. Gartenzeitung*
(Otto & Dietrich) **16**(34) : 266–268.
- Förster, C. F. (1846). *Handbuch der
Cacteenkunde*. Leipzig, Möller. 512 pages.
- Hofer, A. (2021). Proposal to conserve the
name *Echinocactus williamsii* Lem. ex Salm-
Dyck (*Lophophora williamsii*) against *E.*

williamsianus Lem. (Cactaceae). *Taxon* **70**(3): 676.

Hunt, D. (2003). *Cactaceae Systematics Initiative*. Milborne Port, Hunt.

Hunt *et al.* (2006). *The New Cactus Lexicon, Text volume*. Milborne Port, dh books. 373p.

IPNI (2017). *The International Plant Names Index*. <http://www.ipni.org/>

Kattermann, F. (1994). *Succulent Plant Research 1* (Eriosyce). Richmond. 176p.

Lemaire, Ch. (1838). *Cactearum Aliquot Novarum ac Insuetarum in Horto Monvilliano cultarum accurata descriptio*. Paris, Levrault. 40p.

Lemaire, Ch. (1839). *Cactearum Genera Nova Speciesque Novae et omnium in Horto monvilliano cultarum ex affinitatibus naturalibus ordinatio nova indexque methodicus*. Paris, J. Loss. 115p.

Monville, H. B. de (1846). *Catalogue des plantes exotiques consistant la collection de Monville dont la vente aura lieu, aux enchères publiques. à Monville-les-Rouen, le mercredi 15 Juillet 1846*. Rouen, Brière. 30p.

Papsch, W. (2018). To whom is the authorship of *Echinocactus ourselianus* to be attributed? *Schütziana* **9**(1): 3–17.

Regel, E. (1852). *Echinopsis valida* Monv. var. *densa* Regel. *Gartenflora* **1**: 295.

Ritter, F. (1980). *Kakteen in Südamerika*. Band 3, Chile. Spangenberg, Ritter Selbstverlag. pp. 858–1238.

Unger, G. (1986). *Ferocactus piliferus* (Lemaire ex C. Ehrenberg) Unger. *Kakt. and. Sukk.* **37**(2): 45.

Unger, G. (1992). *Die grossen Kugelkakteen Nordamerikas*. Graz/Leibnitz, Unger Selbstverlag. 467 p.

Unger, G. (2010). *Ferocactus pilifer* (Lem. ex Ehrenb.) G. Unger. *Kakt. and. Sukk.* **66**(11): KT 22, 2010, XLIV.

Salm-Dyck, J. (1845a). *Cactae in horto Dyckensi cultae anno 1844*. Parisiis, E Typis Crapelet. 54p.

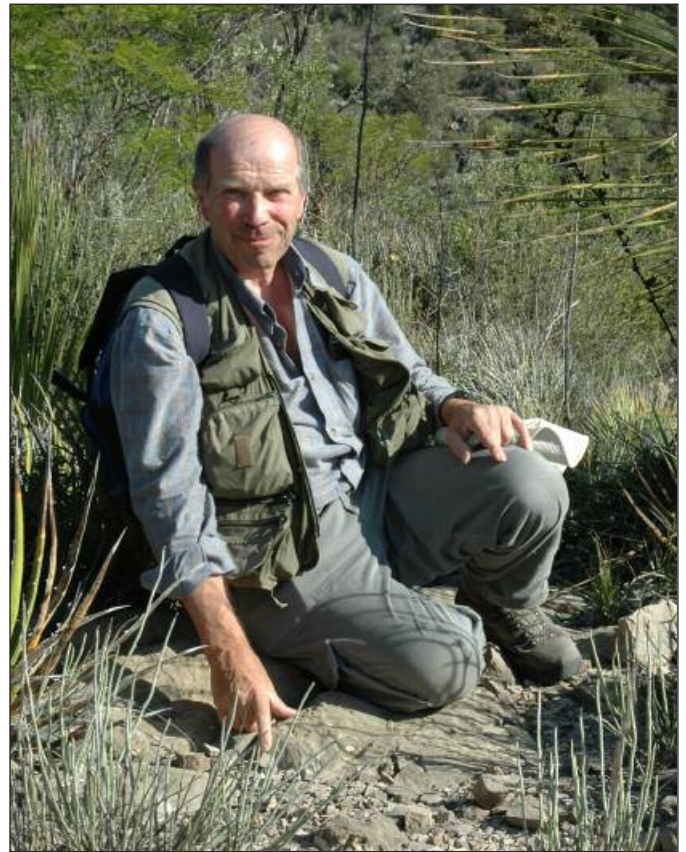


Figure 11. Anton Hofer in habitat in San Luis Potosi, Mexico (2004). Photograph: Paul Hoxey.

Salm-Dyck, J. (1845b). Beschreibung einiger neuen Cacteen (Schluss). *Allg. Gartenzeitung* (Otto & Dietrich) **13**(49): 385–388.

Salm-Dyck, J. (1850). *Cactae in horto Dyckensi cultae anno 1849*. Bonnae, Henry & Cohen. 267p.

Turland, N. J. *et al.* (eds.) 2018: International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code). *Regnum Vegetabile*: 159.

Walter, H. (2008). *Eriosyce*. *Cactaceae Syst. Init.* **24**: 20–21.

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THE CRASSULACEAE OF LANZAROTE (WITH SOME NOTES ON FUERTEVENTURA)

Marco Cristini describes his adventures looking for his favourite plants on Lanzarote and Fuerteventura. If you are planning a holiday there, his notes will help you find succulent plants in this spectacular setting. Photographs by the author.

With an area of 846 square kilometres, Lanzarote is the fourth-largest and easternmost of the Canary Islands (Figure 1). At first sight, it looks quite barren, since it is mostly covered by sand beaches, desert areas, lava fields and volcanoes, yet it hosts an interesting succulent flora with many endemics. In August 2021, I had the opportunity to visit it, as well as Fuerteventura and the minor island of La Graciosa, and observe a few Crassulaceae species growing there. In this paper, I will offer a brief outline of a few botanical excursions, hoping that my notes will be helpful for other succulentophiles who wish to visit this remote but fascinating corner of Europe.



Figure 1. Map of Lanzarote. Source: www.dreamstime.com



Figure 2. *Aeonium lancerottense* in Valle de Malpaso.

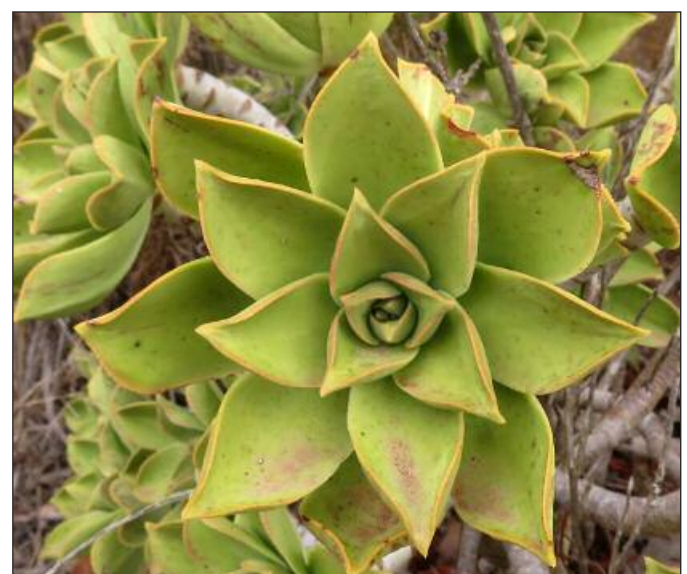


Figure 3. *Aeonium lancerottense* in Valle de Malpaso.



Figure 4. A hemispherical bush of *Aeonium lancerottense* in Valle de Malpaso.



Figure 5. A 120 cm tall specimen of *Aeonium lancerottense* in Valle de Malpaso.



Figure 6. Two contrasting dwarf forms of *Aeonium lancerottense* in Barranco de la Poceta.



Figure 7. A yellowish rosette of *Aeonium lancerottense* in Valle de Malpaso.



Figure 8. A dwarf shrub of *Aeonium lancerottense* near El Castillejo.



Figure 9. A rosette of *Aeonium lancerottense* starting to develop a late inflorescence near Peñas del Chache.



Figure 10. A pale rosette of *Aeonium lancerottense* with traces of dew in Valle de Malpaso.

Haría

The most important town of northern Lanzarote is Haría, which is a good starting-point to explore the island, since it is located at a crossroads of several paths and not far from the Famara cliffs, which host several endemics. *Aeonium lancerottense* (Figures 2&3) is by far the most common Crassulaceae species near Haría. A densely branched shrub up to 120cm tall, it is often vaguely hemispherical in shape, with ascending, rather tortuous stems, 7–15mm in diameter, often with adventitious roots. Its rosettes are 8–18cm in diameter, rather flattened, with green or yellowish leaves, 5–9cm long, 1.5–4cm wide, 3–6mm thick, obovate or oblanceolate-spatulate, acute, glabrous, with slightly ciliate margins, streaked with red along the margins and on the apex. The inflorescences are 8–30cm tall, with flowers with 7–8 whitish petals, pinkish veined in the centre.

A. lancerottense is a highly polymorphic species, sometimes reminiscent of *A.*



Figure 11. Another pale, rosy *Aeonium lancerottense* near Peñas del Chache.



Figure 12. A reddish *Aeonium lancerottense* near Máguez.

davidbramwellii. Low, hemispherical bushes not dissimilar from *A. haworthii* (Figure 4) grow side by side with *A. percarneum*-like shrubs 1–1.2m tall (Figure 5) and dwarf plants (Figure 6). The colour of the rosettes is quite variable: there are yellowish specimens (Figure 7), intense green ones (Figure 8), plants with leaves edged with red (Figure 9), pale, pinkish or reddish rosettes (Figures 10–12). One of the best places to observe the different forms of *A. lancerottense* is Valle de Malpaso (Figure 13), a



Figure 13. Valle de Malpaso, *Aeonium lancerottense* grows profusely next to the path GR-131.



Figure 14. An inflorescence of *Aeonium lancerottense* in Valle de Malpaso.



Figure 15. An old inflorescence (previous year's flowering season) of *Aeonium lancerottense* in Valle de Malpaso.



Figure 16. Some flowers of *Aeonium lancerottense* are still open in early August in Valle de Malpaso.



Figure 17. Bushes of *Aeonium lancerottense* in Valle de Malpaso.



Figure 18. A rosette of *Aeonium lancerottense* in Valle de los Castillos.

valley south of Haría which is crossed by the most important path of the island (called GR-131). On both sides of the path, *A. lancerottense* grows profusely and displays its full range of variability. This species usually flowers from March to July, and I observed plenty of spent inflorescences of both the 2021 (Figure 14) and the 2020 flowering season (Figure 15), but I also found a few with flowers in early August (Figure 16). In the upper part of Valle de Malpaso, I spotted several clumps of *Aichryson tortuosum* as well, but they were quite tiny.

Another easily accessible path close to Haría crosses Barranco Tenesía. The first part leads to a viewpoint which offers a nice perspective on the Famara cliffs, but it is quite lacking in aeoniums, whereas the second part (from the viewpoint to the upper Valle de Malpaso) goes through one of the biggest populations of *A. lancerottense* I saw (Figure 17). Less interesting is a path located north of Haría, which crosses Valle de los Castillos. There are quite a few *A. lancerottense* (Figure 18), but plants are less common than in the above-mentioned places.

Almost all *A. lancerottense* specimens I saw had the rosettes fully open. Only a few very stressed plants showed a tendency to fold them up (Figure 19). This is, as we will see, one of the most immediate points of distinction between this species and *A. balsamiferum*, the only other member of genus *Aeonium* growing on the island. Early in the morning, there were

traces of dew on several rosettes (see Figure 10), and I think that this is the main reason why most plants looked very healthy in spite of the lack of rain since early spring. Moreover, clouds and fog often reach the upper part of Valle de Malpaso, as I experienced more than once, and local flora takes full advantage of the humidity brought by them, not only at night, but also during the day. In Valle de Malpaso, I found a few specimens of *A. lancerottense* around 120cm tall (Figure 5), although I read in literature that the species can reach a height of maximum 80cm. North of Haría, near Máguez, I again found plants of *A. lancerottense* 100–110cm tall.

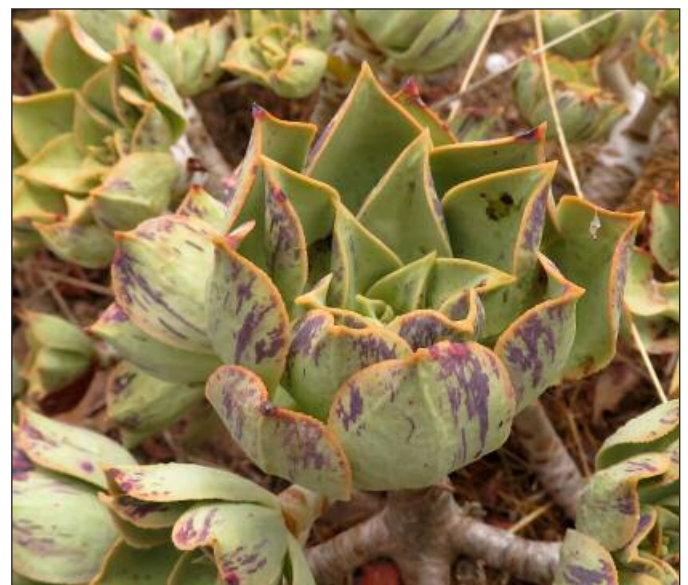


Figure 19. A stressed *Aeonium lancerottense* in Valle de los Castillos.

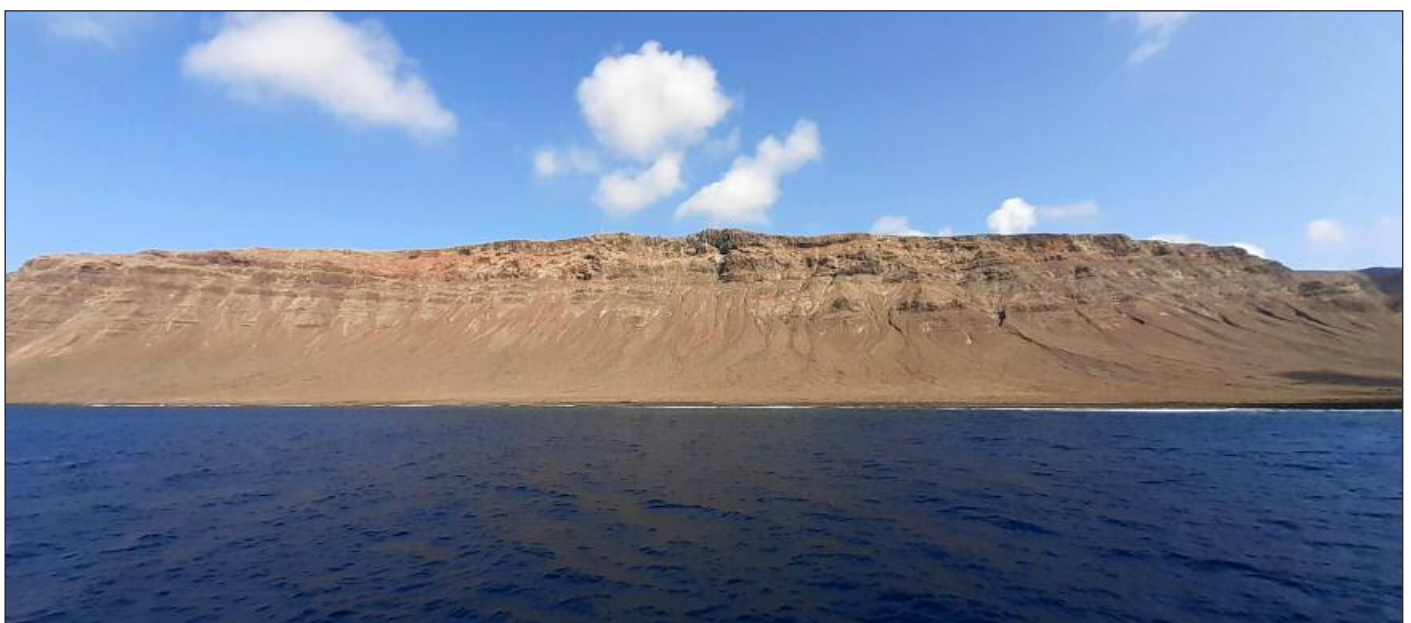


Figure 20. The Famara cliffs seen from the sea.



Figure 21. *Aichryson tortuosum* on the Famara cliffs (Camino de Guatifay).

Guatifay – Mirador del Rio

In a couple of hours of leisurely walk from Haría, one can reach Camino de Guatifay, a steep path leading from the top of Famara cliffs (at around 400–450m) to sea level (Figure 20). I went there because I hoped to find *Aeonium balsamiferum*, which has been reported growing on the cliffs in this area (Praeger, 1925: 201; Gil González & Peña Hernández, 2018: 258), but I could spot it neither near Guinate nor below the road leading to Mirador del Rio. However, the cliffs are very steep, so it is possible that it grows under the edge of the precipice, hidden from all succulentophiles who are not professional climbers or have wings... On the other hand, I saw many nice specimens of *Aichryson tortuosum*, a dwarf succulent forming clumps up to 30–40cm wide, but often only a few cm across (Figure 21). Its leaves are quite fleshy, pubescent, light green or greyish-green, slightly sticky, 8–15mm long, 3–5mm wide, often covered with dust. Yellow flowers, 5–10mm in diameter, can be seen in June–August, and I observed plenty of them during my stay on Lanzarote (Figure 22). Since this succulent is quite tiny and often hidden in cracks of the rocks, flowers make spotting it much easier. *A. tortuosum* can be found at the beginning of Camino de Guatifay, next to the car park, and on the cliffs from an altitude of 350m upwards, often together with *Umbilicus horizontalis* (in August, only spent inflorescences of the latter could be seen). Below that altitude, I found no trace of any



Figure 22. A flower of *Aichryson tortuosum* on the Famara cliffs (Camino de Guatifay).

Crassulaceae species. However, if you reach the coast at the foot of the cliffs, you can have a look at former salinas and enjoy a nice view of the island of La Graciosa.

Mirador del Rio, one of the most famous tourist attractions of Lanzarote, is easily reachable both on foot and by car from Camino de Guatifay. The road leading to it is rich in spectacular views of La Graciosa (Figure 23), but poor in Crassulaceae species, apart from a few *Aeonium lancerottense* and *A. tortuosum*. Mirador del Rio is worth a visit, since it hosts a healthy population of *A. tortuosum* (Figure 24), as well as a few specimens of *A. lancerottense*. Upon leaving this place, I decided to walk to Órzola, a small village on the northern tip of Lanzarote, from where you can take a ferry to La Graciosa (the island hosts only *U. horizontalis*, whose dried inflorescences I was unable to spot during my short stay there). After about an hour, I found many *A. tortuosum* growing on a rocky outcrop next to the path near Vega Grande (at an altitude of around 270m), together with the omnipresent *A. lancerottense*.

Bosquecillo – Ermita de las Nieves

Those who can spend only one (full) day on Lanzarote may observe all endemic Crassulaceae species growing on the island by taking the path which leads from Haría to the chapel of Ermita de las Nieves. After crossing Valle de Malpaso (where *Aeonium lancerottense* and *Aichryson tortuosum* can be found), the



Figure 23. A nice view of La Graciosa from Mirador del Rio.

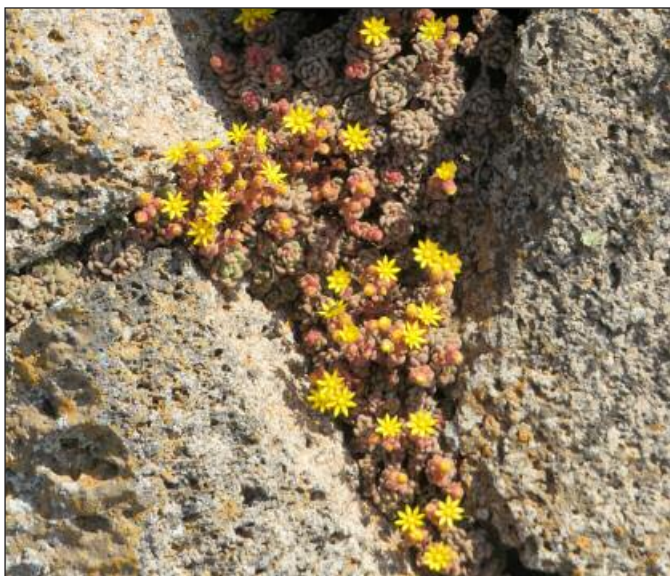


Figure 24. *Aichryson tortuosum* growing on a stone wall at Mirador del Rio.



Figure 25. *Aeonium balsamiferum* at Bosquecillo.



Figure 26. *Aeonium balsamiferum* and *A. lancerottense* growing side by side at Bosquecillo.



Figure 27. A snail eats a rosette of *Aeonium balsamiferum* at Bosquecillo.



Figure 28. Ermita de las Nieves.



Figure 29. This trunk of a palm tree is covered with *Aichryson tortuosum* in bloom.

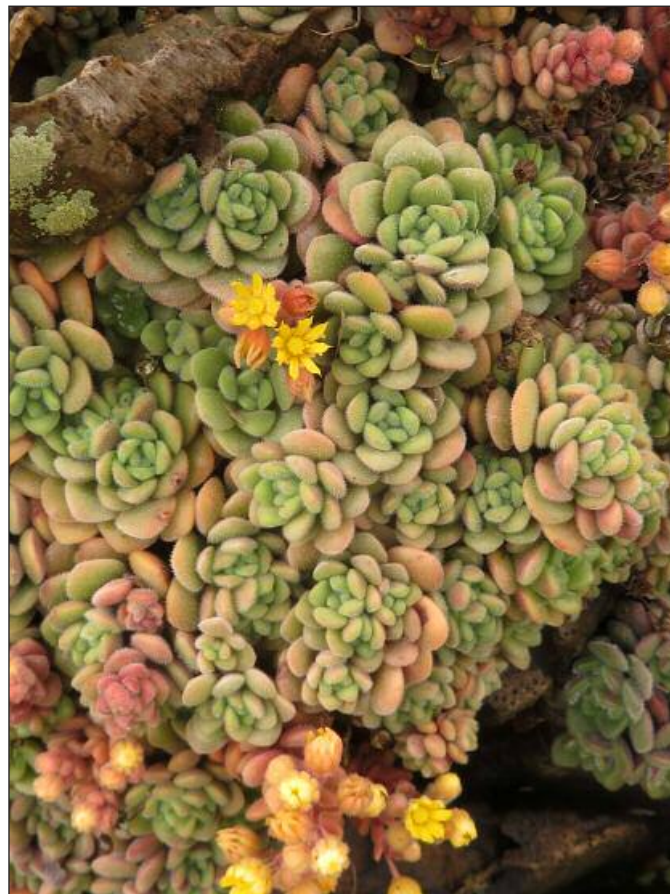


Figure 30. *Aichryson tortuosum* growing epiphytically at Ermita de las Nieves.

path reaches an altitude of 600m and becomes level. From here I reached Bosquecillo, a small woody area with low trees which hosts a nice population of *Aeonium balsamiferum*, an endemic species which is quite rare on Lanzarote (Figure 25). A branching shrub up to 1–1.5m tall, it has a vaguely aromatic smell of balsam (hence the name). It consists of erect or ascending stems, smooth, 8–20mm in diameter. Its rosettes are 7–18cm in diameter, with the youngest central leaves imbricate. Leaves are grey-green, 3–7cm long, 2.5–4cm wide, 1.5–3mm thick, obtrullate to spatulate, mucronate, glabrous, slightly sticky, with curved cilia on the margins, sometimes with dark streaks. Inflorescences, which are 15–25cm tall, with flowers with 7–9 yellow petals, can be observed rarely; it seems that this species is a shy flowerer. In summer, it is easy to distinguish between *A. balsamiferum* and *A. lancerottense*, since the outer leaves of the former wither and only the imbricate, inner leaves survive, forming a folded-up rosette which is entirely different from that of *A. lancerottense* (Figures 26). At Bosquecillo, I



Figure 31. *Aichryson tortuosum* in bloom at Ermita de las Nieves.



Figure 32. *Monanthes laxiflora* on Risco de las Nieves



Figure 33. *Monanthes laxiflora* on Risco de las Nieves, growing next to a small pool of water.



Figure 34. *Sedum lanceroottense* growing epiphytically on a palm-tree at Ermita de las Nieves.



Figure 35. A flower of *Sedum lanceroottense* on Risco de las Nieves.



Figure 36. A cave below the edge of the cliff near Ermita de las Nieves is still used by local people

observed only a single specimen of *A. balsamiferum* on the cliff itself, while the others grow facing the inner part of the island. Many specimens were infested with white snails which were attached to the inner part of the rosette (Figure 27).

A. balsamiferum has been reported growing on the cliffs of Famara (e.g. Burchard, 1929: 136; Lodé, 2010: 44; Muer *et al.*, 2016: 272), yet I was able to confirm only a few sightings. By using the telephoto lens of my camera, I did spot the plant on the cliffs both south-west of Peñas del Chache (at around 500m) and near Ermita de las Nieves, but I did not find it at Castillejo, where it was observed by Gil González & Peña Hernández (2018: 258). The path to this place is not always easy, especially as far as the last part is concerned; however, it leads to a few caves once used as dwellings by the natives before the Spanish conquest and crosses an area with plenty of attractive specimens of *A. lancerottense*, many of them bright green (see Figure 8).

Turning back to the main path (GR-131), Ermita de las Nieves (Figure 28) can be reached in about an hour on foot from Bosquecillo, or by car from Haría. The chapel is surrounded by palm-trees whose trunks host an incredibly rich succulent flora. The most widespread species is *Aichryson tortuosum*, which forms impressive clumps and often covers almost entirely the trunks (Figures 29–31), but I also spotted *Monanthes laxiflora* and *Sedum lancerottense* growing epiphytically.

M. laxiflora (Figure 32) is a small succulent which can be observed on all Canary Islands. With stems 5–10cm long, often decumbent, it is covered with obovate leaves 4–10mm long, 3–6mm wide, very succulent, greyish-green to reddish. It prefers damp places (Figure 33). The taxonomic status of the plants growing on Lanzarote and Fuerteventura is not entirely clear, since they have been sometimes assigned to a different species (*M. microbotrys*) because of their smaller and more compact habit. However, Nyffeler (1992: 78) convincingly remarks that “these characters proved to depend strongly on environmental factors. Plants from these islands are not separable

from specimens growing in exposed places in the xerophytic lowland zone of Gran Canaria and Tenerife, that also form compact clumps of subglobular leaves entirely covered with whitish wax layers”.

S. lancerottense (Figure 34) is a Lanzarote endemic which grows almost only on the Famara cliffs. A creeping succulent with decumbent stems, it has leaves 7–10mm long, 3–5mm wide, fleshy, ovate, glabrous, greenish-yellow, and yellow flowers with 5 petals. Anthesis is said to take place in March–June (Lodé, 2010: 292) or May–June (Bañares, 2015: 257), yet I saw two plants in bloom in early August (Figure 35), and a few in bud. This plant is quite similar to *Sedum nudum*, which grows on Madeira, and for this reason has been considered both a subspecies [*Sedum nudum* ssp. *lancerottense* (Murray) A. Hansen & Sunding] and a variety [*Sedum nudum* var. *lancerottense* (Murray) Fröderström] of the latter, yet it seems better to treat it as a species, following 't Hart (in Eggli, 2003: 283; see also Bañares, 2015: 257–258).

These succulents are able to thrive on the trunks of palm-trees because of the humidity carried by the clouds which often cover the upper part of the Famara cliffs. I experienced this meteorological phenomenon first-hand during my second day on Lanzarote. Taking advantage of the information included in the papers by Stephenson (2012) and Afferni (2015, 2015a), I decided to visit Ermita de las Nieves in the morning, in order to have the whole day to explore the area. Upon arriving there, I experienced a weather which was more reminiscent of Normandy than the Canary Islands. I found myself (literally) walking inside the clouds, with a quite strong wind coming from the Ocean and plenty of humidity in the air. Visibility was very poor, my glasses kept becoming misted over and I took many photos half-blind. However, I was able to spot *A. tortuosum*, *M. laxiflora* and *S. lancerottense* not only on the palm trees, but also at the edge of the cliffs, 200–300 metres west of the chapel. While kneeling down to photograph these plants, I felt more than once drops of water trickling from the palms onto



Figure 37. *Sedum lancerottense* on Risco de las Nieves.



Figure 38. *Sedum lancerottense* on Risco de las Nieves.



Figure 39. *Monanthes laxiflora* on Risco de las Nieves.



Figure 40. *Monanthes laxiflora* on Risco de las Nieves.



Figure 41. *Aeonium balsamiferum* near the military base of Peñas del Chache.



Figure 42. Inflorescences of *Aeonium lancerottense* near Peñas del Chache.



Figure 43. Flowers of *Aeonium lancerottense* near Peñas del Chache.



Figure 44. A bee on a flower of *Aeonium lancerottense* near Peñas del Chache.



Figure 45. *Aeonium lancerottense* growing epiphytically on a palm-tree near Peñas del Chache.



Figure 46. Vineyards near Caldera Quemada; the stone walls have been built to protect the plants from the wind.



Figure 47. *Aeonium balsamiferum* on Caldera Quemada.



Figure 48. *Aeonium balsamiferum* on Caldera Quemada.



Figure 49. The inner faces of Caldera Quemada are covered with *Aeonium balsamiferum*.

my neck, and I observed that the earth under the trees was much wetter than the surrounding ground. Upon witnessing this phenomenon, I remembered the legend of Garoe, a plant that allegedly provided both the native inhabitants of El Hierro and the first Spanish settlers with fresh water flowing from its leaves. In his *Natural History* (book 6, chapter 203), Pliny the Elder (first century A.D.) relates a similar story, namely that trees similar to giant fennel from which water was extracted grew on an island called Ombrion (either Lanzarote or Fuerteventura). I do not know what species of trees could be found on Lanzarote and Fuerteventura before the Spanish conquest, but it is possible that the natives used some of them to replenish their supply of fresh water. I think that one could collect a fair amount of water even nowadays by putting a few bowls under the palm-trees of Ermita de las Nieves.

I came back four days later and the weather was slightly better, so I was able to use the telephoto lens of my camera and spot *A. balsamiferum* on the cliffs. I also found a small path which runs 20m below the edge of the cliffs towards Peñas del Chache. It is used by local people to reach some caves (Figure 36). Around 1–2km north-east of the Ermita, I found another healthy population of *Sedum lancerottense* (Figures 37&38), together with *A. tortuosum* and *M. laxiflora* (Figures 39&40).



Figure 50. *Aeonium balsamiferum* growing on a recent lava flow near Caldera Quemada, but only on rocks covered with lichens.

They grow on vertical, west-facing rocks fully exposed to the wind coming from the Ocean.

I also explored Barranco de Maramajo and Barranco de la Poceta (respectively south and west of Ermita de las Nieves), in order to see whether these succulents grow at a lower altitude too, but I was able to find only a few *A. tortuosum* (above 350m). Both *A. balsamiferum* and *S. lancerottense* have been reported from Peñas del Chache, the highest elevation of the island (672m), yet the top of this small mountain is now occupied by a military base (with impressive radar), so it is not advisable to come too near to look for succulents! I can only say that *A. balsamiferum* grows around 1km south-west of it, on the cliffs. I found a plant on a stone wall 500–600m south-west of the base (Figure 41), but I do not know if it had been planted there by a farmer or has grown spontaneously. *A. lancerottense* is common near the base and I saw quite a few plants still in bloom (Figures 42&43), with plenty of bees visiting the inflorescences (Figure 44). I also spotted a few specimens growing epiphytically on palm trees (Figure 45). Near another military base, a couple of km south of Ermita de las Nieves, I again found a solitary specimen of *A. balsamiferum* (next to the path GR-131). Possibly, it had grown from seeds carried by the wind.



Figure 51. *Aichryson tortuosum* growing on a recent lava flow near Caldera Quemada.



Figure 52. A plant looking somewhat intermediate between *Aeonium balsamiferum* and *A. lancerottense* on Caldera Quemada.



Figure 53. A rosette of *Aeonium balsamiferum* on Montaña de los Rostros.

Caldera Quemada – Montaña de los Rostros

Thanks to the excellent guide by Gil González & Peña Hernández (2018: 258), I knew that two healthy populations of *A. balsamiferum* can be found near Mancha Blanca, south of Tinajo, and I decided to spend a day there. I first went to Caldera Quemada, a former volcano surrounded by the so-called Malpaís (literally bad-country), an area of Lanzarote which was covered with lava after the devastating eruptions of 1730–1736. In a few places, brave farmers managed to carry away the lava, bare the former soil and plant vineyards (Figure 46), but most of the country is still barren. Gil González & Peña Hernández remark that Caldera Quemada hosts the best population of *A. balsamiferum* (which was first collected here, see Webb & Berthelot, 1840: 192) and I cannot but agree, since the succulent,

which is quite rare in other part of the island, covers both the external and internal rock faces of the caldera, growing more profusely on the latter (Figures 47–49). *A. lancerottense* is represented as well, yet it is by far less common than *A. balsamiferum*. I also observed both species on the neighbouring lava fields where very few other plants grow. I noticed that they usually manage to survive only on rocks which are covered with lichens (Figure 50), which possibly provide them with a tiny layer of soil. *A. lancerottense* is much more widespread in this harsh habitat. I was quite surprised to find also *Aichryson tortuosum* growing in rock cracks next to the path between Caldera Quemada and the road LZ-56, at an altitude of around 300m (Figure 51). I thought that it avoided such a barren and arid environment, but the humidity coming from the Ocean manages to reach this part of the island as well, as I understood when I touched a porous lava stone and found it wet, although it was around eleven and the stone was located in full sun.

On Caldera Quemada, I observed a plant which showed features partly reminiscent of *A. balsamiferum* and partly of *A. lancerottense* (Figure 52). Crosses between these taxa have not been observed yet, and I am aware that the specimen I saw could well be an unusual form of *A. balsamiferum*, yet I think that a more careful study of the plants growing in this area might be worthwhile, especially in winter or



Figure 54. A rosette of *Aeonium balsamiferum* on Montaña de los Rostros.



Figure 55. Flower buds of *Aeonium balsamiferum* on Montaña de los Rostros.

early spring, when they are less stressed by drought. More in general, the topic of the existence of crosses between *A. balsamiferum* and *A. lancerottense* should be approached from a different perspective in my opinion. In fact, the latter show such a variety of forms that I am not sure that, had a crossing taken place,



Figure 56. Adventitious rosettes of *Aeonium balsamiferum* on Montaña de los Rostros.

we would be able to recognize it when out of flower. I wonder if the polymorphism of *A. lancerottense* could be partly explained by a few episodes of hybridization (and introgression) which occurred thousands (or tens of thousands) of years ago, when the weather was more humid and these succulents grew



Figure 57. Map of Fuerteventura.

Source: www.dreamstime.com.

together in more places.

Montaña de los Rostros, around 3km west of Caldera Quemada, hosts another population of *A. balsamiferum*, which grows only on the northern slopes of the mountain. For the first time, I noticed many spent inflorescences and a couple of plants with flower buds (Figures 53–55). Interestingly, adventitious rosettes could be seen on many inflorescences (Figure 56), a feature which is commonly observed in other Crassulaceae genera (e.g. *Kalanchoe*, sometimes *Echeveria*), but which I rarely saw in members of the genus *Aeonium*. *A. balsamiferum* seems to flower irregularly, possibly depending on local circumstances, so that one population may bloom profusely while another just a few kilometres away develops no inflorescences.

I also visited Caldera Blanca, a quite famous tourist attraction not far from Montaña de los Rostros, but found no Crassulaceae species there. While exploring these calderas, I had the impression that *A. balsamiferum* was once more widespread, yet it lost much of its habitat after the eruptions of 1730–36 covered most of central Lanzarote with lava. The fact that the plant grows willingly both on stone-walls and lava fields in flat areas may indicate that once it was more common there.

Fuerteventura's Crassulaceae and where (not) to find them

As readers might guess from the title of this paragraph, my search for Crassulaceae on Fuerteventura (Figure 57) was not very successful. My main aim was to find and photograph the naturalized populations of *Aeonium balsamiferum* growing there for my forthcoming book on genus *Aeonium*, but I also hoped to be able to spot a few aichrysons and monanthes. Leaving aside *A. balsamiferum* for the moment, I am a little ashamed in writing that I failed to spot a single Crassulaceae species native of the island, although I looked for them for the better part of four days. However, a few remarks on the sites I explored and literature I consulted may be useful for readers who plan to go there, enabling them to cross out a few places.

On the first day, I went from La Oliva to Tindaya on the path GR-131, then reached the valley of Vallebrón, climbed Montaña de la Muda, arrived at La Matilla, went back to Vallebrón, walked until Fuente Tabaiba and finally came back to La Oliva. Bañares & Marrero (2008: 483) report that *Aichryson tortuosum* var. *bethencourtianum* grows on Morro Tabaiba, Morro de los Rincones, and Montaña de la Muda, but I spotted it neither near the path PR-FV 9 between Valle Grande and La Matilla (i.e. on Montaña de la Muda) nor at Fuente Tabaiba, which is one of the few springs of Fuerteventura. A couple of days later I climbed from La Oliva to Morro de los Rincones and I walked on the ridge until Morro Carnero (to the east) and Morro Tabaiba (to the west), yet I again failed to find this species on the northern slopes of the mountains or near the ridge. I also walked on the path SL-FV 29 from Antigua to Betancuria: I thought that maybe I could find *A. tortuosum* var. *bethencourtianum* near Degollada de la Villa (583m), but was unsuccessful.

While staying in La Oliva (in the northern part of Fuerteventura), I planned to spend a day in Jandía, a peninsula in the south of the island. I knew that many Crassulaceae species grow near Pico Fraile (686m), but was unable to find a path leading to it on my Kompass



Figure 58. *Euphorbia handiensis* in Barranco de Gran Valle.

map. I decided to walk on the track leading from Barranco de Gran Valle to Cofete, which runs a couple of km east of the mountain, in the hope of spotting either some plants near the highest point of the route (Degollada de Cofete, 343m) or a path leading to Pico Fraile. Needless to say, I found neither. While crossing Barranco de Gran Valle, I observed quite a few specimens of *Euphorbia handiensis* (Figure 58) and had a wonderful view of the northern part of Jandía from Degollada de Cofete, but was unable to spot any Crassulaceae species, although four reportedly grow on Fuerteventura, namely *Aichryson laxum* (Kunkel, 1977: 234, and 1977a: 63, reports it from Pico de la Zarza, possibly following Bolle, 1892: 240; Burchard, 1929: 123 adds another locality, Monte de Cardon at 600m), *Aichryson pachycaulon* (see Praeger, 1932: 123–124; Bañares *et al.*, 2004: 84–85; Bañares 2015: 198–199; the population of Pico Fraile is possibly extinct, whereas that of Pico de la Zarza still survives at an altitude of about 600m on north-facing cliffs), *Aichryson tortuosum* var. *bethencourtianum* (Bañares *et al.*, 2008: 483), and *Monanthes laxiflora* (near Pico Fraile and Pico de la Zarza according to Nyffeler 1992: 77 and Lodé, 2015: 273; see also Martin, 2013: 164). Next time I fly to Fuerteventura, I will make sure to have a whole day to explore Pico de la Zarza (807m), which is reached by path PR-FV 54.

Fortunately, my search for *Aeonium balsamiferum* met with more success. The



Figure 59. *Aeonium balsamiferum* growing between opuntias near a ruined house in La Matilla.



Figure 60. *Aeonium balsamiferum* in a ditch (northern part of La Oliva).

succulent is reported as naturalized in several towns of northern and central Fuerteventura (Burchard, 1929: 136; Rebmann, 2004; Lodé, 2005; Lodé, 2010: 44) and I was able to confirm all but one of the sightings, although this species is clearly in decline. I first observed it in La Matilla, where I found at least 4 populations, mostly in abandoned gardens or fields (Figure 59). Then, I saw *A. balsamiferum* twice in Tindaya, on a central reservation and in a pot outside a house. Obviously, the succulent has been growing only for a couple of years in these places, but the fact that it can be found there indicates the possible existence of naturalized populations or shrubs in gardens nearby, since I never saw *A. balsamiferum* for sale in local garden centres. The same is true for Valle Grande, where I



Figure 61. *Aeonium balsamiferum* near a garden in Betancuria.

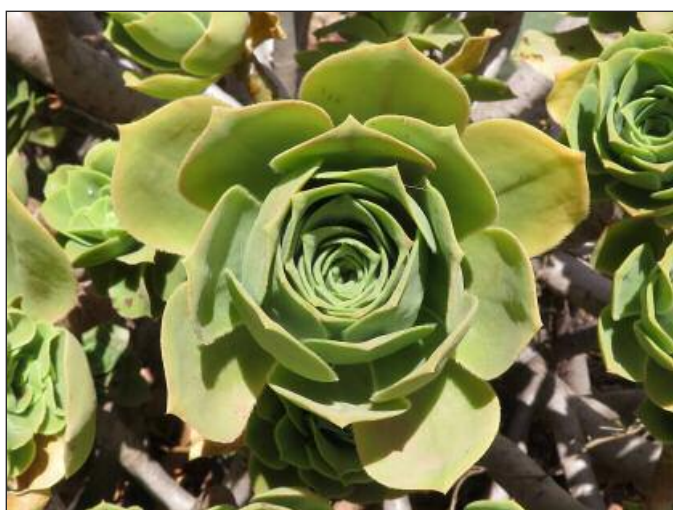


Figure 62. A rosette of *Aeonium balsamiferum* near a garden in Betancuria.



Figure 63. Bushes of *Aeonium balsamiferum* in Betancuria, at the beginning of the path towards Antigua.

spotted the succulent near the path towards La Matilla, in front of a house which was guarded by half a dozen dogs barking furiously at whomever went too close to the plants...

After several hours of searching, I was able to find only two populations in La Oliva, both of them in the northern part of the city and very close to each other. I saw a few plants growing in a big pot outside a house and a few in a ditch (Figure 60). The latter were in very poor conditions because of the lack of water and quite a few looked dead. It is likely that the potted specimens I observed derive from the ditch population, since the latter plants seem to have been established there for quite a long time. A few years ago, they were possibly looked after, but now the population is dwindling quickly. I was unable to spot any plant in Vallebrón, although I saw plenty of abandoned fields with opuntias and agaves.

In Antigua, I spotted two populations, one next to the road to Triquivijate in a garden (with young plants freshly potted) and another (much older) in an abandoned field in the north-western part of the town. Betancuria hosts the best populations of *A. balsamiferum* (Figures 61–63): I saw plenty of healthy plants at the beginning of the path leading to Antigua (SL-FV 29; see Figure 64), and many others near the church, in the centre of the town.

A. balsamiferum often grows in abandoned fields and gardens together with *Opuntia ficus-indica* (as already reported by Burchard, 1929: 136). It is undoubtedly not native of Fuerteventura, since it only grows in towns or villages, always near houses or fields. As for the reasons why it has become naturalized on the island, Webb & Berthelot (1840: 192) conjecture that *A. balsamiferum* was once cultivated by local fishermen for its balsam, which they used to strengthen and waterproof fishing nets, as was the case on Madeira with *A. glutinosum* and in Portugal with *A. arboreum* (Bolle, 1892: 246). Praeger (1925: 201–202) and Lodé (2010: 44) accept this explanation, but I am quite sceptical, since all places where *A. balsamiferum* can currently be found are quite far from the sea. It is striking that it has never been reported from towns and villages on the



Figure 64. Betancuria (background), the path towards Antigua is bordered with *Aeonium balsamiferum*.

coast. I suspect that *A. balsamiferum* was introduced onto Fuerteventura a few centuries ago and spread in many towns because it was cultivated as an ornamental plant or used to treat some ailments. Now the succulent seems to be out of fashion and local people prefer to grow *Crassula ovata*, *Kalanchoe thyrsiflora*, *Sedum morganianum* or some echeverias, therefore *A. balsamiferum* is often confined to abandoned fields or unkempt gardens. Moreover, it is slowly losing ground, as *Opuntia ficus-indica* and other non-Canarian succulents grow faster and become taller.

It seems to me that *A. balsamiferum* does not thrive if it is unable to take advantage (either directly or indirectly) of some water used for irrigation, therefore it will probably disappear from abandoned gardens and fields which are far from inhabited houses or tilled land. This is most unfortunate, since *A. balsamiferum* is quite

rare on Lanzarote (it is listed as vulnerable in the IUCN Red List) and the Fuerteventura populations may become useful in the future for conservation purposes. Moreover, genetic studies might show that the plants naturalized on Fuerteventura derive from populations which are now extinct following the volcanic eruptions of 1730–36. In my opinion, local people should be encouraged to grow this succulent in their gardens on Fuerteventura, since *A. balsamiferum* is not only part of their cultural heritage, but also a threatened species which should be preserved outside its habitat in order to prevent its extinction.

Bibliography

- Afferni, M. (2013). Alla ricerca di succulente a Fuerteventura. *Cactus & Co.* **17**(2–3): 6–29.
 Afferni, M. (2015). Alla ricerca di succulente a Lanzarote (Canarie). *Cactus & Co.* **19**(2/3): 134–161.

- Afferni, M. (2015a). Il *Sedum* endemico delle isole Canarie. *Bullettino della Società Toscana di Orticoltura* **2015**(3): 4–9.
- Afferni, M. (2020). Ricerca di alcune succulente non comuni in fioritura a Tenerife, Fuerteventura e Lanzarote. *Piante Grasse* **40**(1): 7–17.
- Bañares Baudet, A. (2015). *Las plantas suculentas (Crassulaceae) endémicas de las Islas Canarias, Santa Cruz de Tenerife*.
- Bañares Baudet, A., et al. (2004). *Atlas y Libro Rojo de la Flora Vasculare Amenazada de España, Madrid*.
- Bañares Baudet, A., Marrero Gómez, M.V. & Scholz, S. (2008). Taxonomic and Nomenclatural Notes on Crassulaceae of the Canary Islands, Spain. *Willdenowia* **38**: 475–489.
- Bolle, C. (1892). Florula insularum olim Purpurasiarum, nunc Lanzarote et Fuerteventura cum minoribus Isletas de Lobos et la Graciosa. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* **14**: 230–257.
- Bolle, C. (1893). Botanische Rückblicke auf die Inseln Lanzarote und Fuerteventura. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* **16**: 224–261.
- Bregman, R. (2000). Canarische Eilanden. 1. Lanzarote. *Succulenta* **79**: 205–210.
- Burchard, O. (1929). *Beiträge zur Ökologie und Biologie der Kanarenpflanzen, Stuttgart*.
- Carbonell, E. (2007). *Cuadernos de suculencia 2, Barcelona*.
- Carbonell, E. (2007a). Endemismos suculentos de Lanzarote. *Succulentas* **39**: 22–23.
- Cristini, M. (2022). Looking for *Sedum lancerottense* on Lanzarote. *Sedum Society Newsletter* **141**: 36–40.
- Cruz Trujillo, G.M. (2004). *Flora vascular del Parque Nacional de Timanfaya. (Lanzarote, Islas Canarias), Madrid*.
- Eggli, U. (ed.) (2003). *Illustrated Handbook of Succulent Plants: Crassulaceae, Berlin*.
- Gil González, G. & Peña Hernández, M. (2018). *Guía Visual de la Flora Vasculare de la Reserva de la Biosfera de Lanzarote, Las Palmas*.
- Kunkel, G. (1977). *Endemismos Canarios. Inventario de las plantas vasculares endémicas en la provincia de Las Palmas, Madrid*.
- Kunkel, G. (1977a). *Las plantas vasculares de Fuerteventura (Islas Canarias), con especial interés de las forrajeras, Madrid*.
- Lodé, J. (2005). Fuerteventura, Island of the Great Adventure. *Cactus-Adventures* **66**: 8–15.
- Lodé, J. (2010). *Plantas Suculentas de las Islas Canarias, Santa Cruz de Tenerife*.
- Martin Osorio, V.E. (2013). La clase fitosociológica Greenovio-Aeonietea en Jandía, Fuerteventura, con descripción de dos nuevas asociaciones. *Vieraea* **41**: 161–168.
- Muer, T., Sauerbier, H. & Cabrera Calixto, F. (2016). *Die Farn- und Blütenpflanzen der Kanarischen Inseln, Weikersheim*.
- Nelson, E.C. (2010). Lizards on *Aeonium lancerottense* in Lanzarote, Canary Islands: a New Example of Pollination by Reptiles?. *Bradleya* **28**: 15–18.
- Nyffeler, R. (1992). A Taxonomic Revision of the Genus *Monanthes* Haworth (Crassulaceae). *Bradleya* **10**: 49–82.
- Praeger, L.R. (1921). *An Account of the Genus Sedum as found in Cultivation, London*.
- Praeger, L.R. (1925). Notes on Canarian and Madeiran *Semperviva*. *Transactions and Proceedings of the Botanical Society of Edinburgh* **29**: 199–217.
- Praeger, L.R. (1932). *An Account of the Sempervivum Group, London* (reprinted: New York 1967 and Stuttgart 2012).
- Rebmann, N. (2004). Le succulentes de l'île de Fuerteventura. *Succulentas* **2004**(2): 9–14.
- Rebmann, N. (2005). L'île de Lanzarote. *Succulentas* **2005**(1): 12–17.
- Reyes Betancort, J.A., et al. (2000). *Estado de conservación de la flora silvestre amenazada de Lanzarote (Islas Canarias), Las Palmas de Gran Canaria*.
- Richter, I. (2004b). Endemische Sukkulente auf Lanzarote. *Kaktusblüte Wiesbaden* **21**: 43–48 [= Endemische sukkulente på Lanzarote. *Kaktus og andre Sukkulenter* **42**:1 (2007): 11–18].
- Schouten, J. (2002). Lanzarote. *Succulenta* **81**: 56–59.
- Stephenson, R. (2012). An Unusual Epiphytic Succulent: *Aichryson tortuosum*. *Cactus and Succulent Journal (U.S.)* **84**(5): 247–249 [=

Eine ungewöhnliche epiphytische Sukkulente: *Aichryson tortuosum*. *Avonia-News* 2013(10): 20–24].

Stephenson, R. (2012a). *Sedum lancerottense* - a Species in Decline?. *Sedum Society Newsletter* 102: 95–99.

Wray, T. (2014). The Succulents of Lanzarote. *Sedum Society Newsletter* 109: 57–60.

Appendix 1: Selected locations of some Crassulaceae species growing on Lanzarote

In the following appendices, I indicate the position of most Crassulaceae species which I observed on Lanzarote and Fuerteventura. Of course, I make no claim to completeness; these data refer exclusively to the parts of the islands which I visited in 2021.

Mirador del Rio: *Aeonium lancerottense*, *Aichryson tortuosum*.

Guatifay: *Aichryson tortuosum*, *Umbilicus horizontalis* (only above 350m).

Haría (Barranco Tenesía – Valle de Malpaso – Valle de los Castillos): *Aeonium lancerottense*, *Aichryson tortuosum* (only in the upper part of Valle de Malpaso), *Umbilicus horizontalis*.

Bosquecillo: *Aeonium balsamiferum*, *A. lancerottense*, *Aichryson tortuosum*.

Castillejo: *Aeonium lancerottense*.

Peñas del Chache: *Aeonium balsamiferum* (mostly on the cliffs), *A. lancerottense*.

Ermita de las Nieves: *Aeonium balsamiferum* (mostly on the cliffs), *Aeonium lancerottense*, *Aichryson tortuosum*, *Monanthes laxiflora*, *Sedum lancerottense* (both growing epiphytically on palms and at the edge of the cliffs), *Umbilicus horizontalis*.

Barranco de la Poceta: *Aeonium lancerottense*, *Aichryson tortuosum* (above 350m).

Caldera Quemada – Montaña de los Rostros: *Aeonium balsamiferum*, *A. lancerottense*, *Aichryson tortuosum*, *Umbilicus horizontalis*.

Appendix 2: Some Crassulaceae species growing on Lanzarote and Fuerteventura

Aeonium balsamiferum: Lanzarote: Bosquecillo, Peñas del Chache (cliffs), Ermita de las Nieves (cliffs), Caldera Quemada, Montaña

de los Rostros.

On Fuerteventura, I observed *A. balsamiferum* (naturalized) in: La Matilla (4 populations both east and west of the road FV-10: near a ruined house, in the garden of an abandoned house, on a stone wall, in a well-kept garden), Vallegrande (outside a house near the beginning of the path towards La Matilla), Tindaya (a plant in a central reservation, another in a pot outside a house), La Oliva (two populations: in front of a house in the northern part of the city, and in a ditch in Calle las Portadas), Antigua (2 populations: in an abandoned field in the north-western part of the town, and next to the road to Triquivijate – FV-413 – a few meters east of the crossroads with FV-20 near a garden); Betancuria (three populations: on both sides of the path leading to Antigua shortly before entering Betancuria, in an abandoned field in the centre of the town south of the church, in the garden next to the church).

Aeonium lancerottense: Lanzarote: widespread throughout the northern and central part of the island: Mirador del Rio, Haría, Bosquecillo, Castillejo, Peñas del Chache, Ermita de las Nieves, Barranco de la Poceta, Caldera Quemada, Montaña de los Rostros.

Aichryson tortuosum: Lanzarote: Mirador del Rio, Guatifay (only above 350m), Haría (upper part of Valle de Malpaso), Bosquecillo, Ermita de las Nieves, Risco de las Nieves, Barranco de la Poceta (only above 350m), west of Caldera Quemada.

Monanthes laxiflora: Lanzarote: Ermita de las Nieves, Risco de las Nieves.

Sedum lancerottense: Lanzarote: Ermita de las Nieves, Risco de las Nieves.

Umbilicus horizontalis: Lanzarote: Guatifay, Haría, Ermita de las Nieves, Caldera Quemada.

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FREDERICK ADOLPHUS WISLIZENUS

Peter Berresford tells us the story of a pioneer plant hunter in the early days of the United States of America.

Photographs by the author except where shown.

Born in 1810 in Königsee (about 40km south of Erfurt) Germany, Frederick Adolphus Wislizenus planned to study and qualify as a doctor of Medicine in Germany. At the age of 23 he was part of a failed attempt to overthrow the many sovereigns holding power in every province and start a revolution with the aim of creating a united Germany. The populous failed to rise at the target of the rebellion in Frankfurt, where the Bundesrath (co-ordinating council) met and he had to flee to Switzerland. In Zurich he earned his M.D under the tutelage of several German professors who shared his political beliefs. He practised as a doctor in Zurich before spending a little time in Paris hospitals but in 1835 emigrated to New York where, it is said, he found work as a poet and distributing pamphlets. In 1836, moving to Mascoutah, Illinois he worked as a doctor among more German refugees with similar beliefs but found provincial life boring.



In 1839 he embarked on the Oregon Trail, one of the great westward wagon-trails across the US and travelled as far as Fort Hall in Idaho. The detailed day-by-day record of his observations was published as *A trip to the Rocky Mountains* in 1839 and has become one of the great historical records. The trip was estimated at 4830km and is very interesting to read, revealing his careful observations of wild animals and Native Americans and the nature of an exclusive diet of meat. On encountering the first grizzly bear, buffalo, prairie dog, elk, deer or beaver, Wislizenus described its habits and lifestyle and what sort of meat it produces in considerable detail. He also revealed just how many different tribes of Native Americans he encountered describing their often-nomadic lifestyles and frequent dependence on buffalo. What is lacking is a detailed record of altitude

readings or of the plants he encountered. Some berries and trees are mentioned in passing but there are very few and general comments on cacti. I do not recall any names of cacti at all.

Despite the shortcomings of the book it is clear that what he learnt on this journey both whetted his appetite for further adventure and gave him ideas about the desirability of careful, more scientific recording during further travels.

On his return he set up a medical partnership in St. Louis with fellow ex-patriot Dr. George Engelmann and both of them regularly attended the Western Academy of Natural Sciences. In 1846 the prospect of another adventure left Engelmann in St. Louis looking after patients whilst Wislizenus travelled to Northern Mexico. The friendship and shared interests in the natural world endured until the death of Wislizenus and was to become very important in the discovery and understanding of plants in lands where documented records were a rarity. Plants which Wislizenus collected became part of Engelmann's herbarium which formed the nucleus of the Missouri Botanical Gardens in St. Louis. Engelmann's interest in plants had developed from the age of 15 and the dissertation for his M.D. has been described as being more about plants than medicine! He described Wislizenus as an "unbotanical collector" however he had a good eye for the unusual.

Any plants collected by Wislizenus were described by Engelmann if he regarded them as 'new to science'. As a result it is Engelmann's name which appears most prominently in the extended name of a plant (for example *Echinocereus adustus* (Engelm. in Wisl., *Mem. Tour N. Mexico* [Wislizenus] 1848. 108). Senator Benton of Missouri



Figure 1. The Courthouse at Independence, Missouri circa 1850 Library of Congress, Washington DC.

commissioned the printing 5000 copies of both the diary of Wislizenus and Engelmann’s descriptions. Later Engelmann’s descriptions were also later included as a commentary to the diary of Wislizenus and published together. Reading through the diary of Wislizenus I counted 57 new descriptions made by Engelmann including 23 species and 1 new genus of Cactaceae.

It took Wislizenus 5 days to reach the starting point of Independence in Missouri (Figure 1). This was the place where travellers sought a caravan heading westwards led by intrepid businessmen. At many ‘stops’ Wislizenus recorded the altitude – here he wrote *My barometrical observations during my stay... gave as its elevation above the sea 317m.* From these statistics, a graphical profile of the altitude of the trip was produced including every stop and a superb hand-drawn map. Both of these are included as folded documents in a pocket attached to the inside

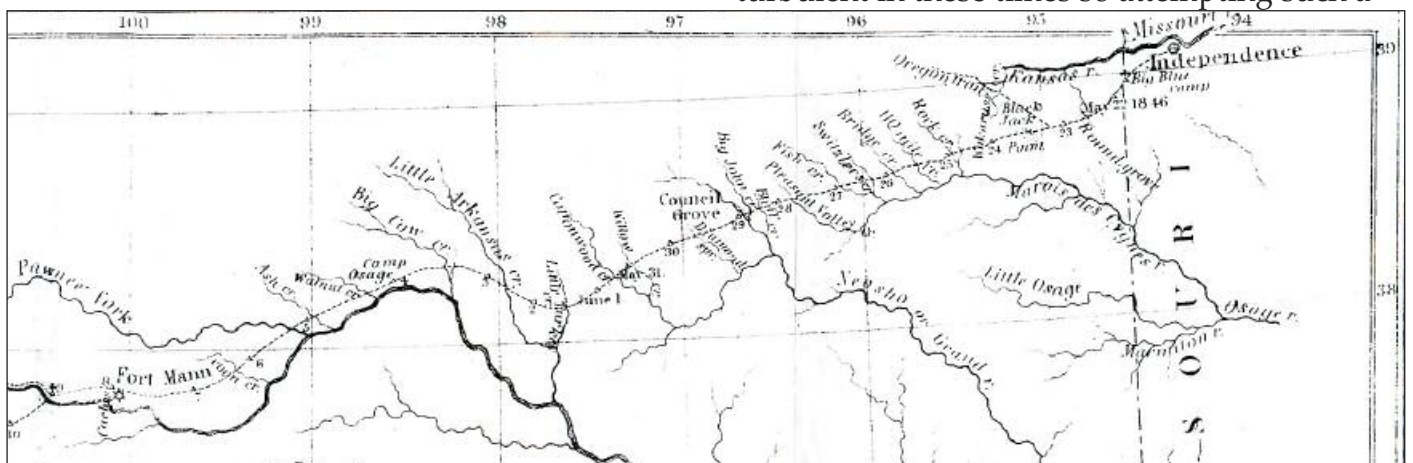


Figure 2. March of the caravan. Illustration from Josiah Gregg *Commerce of the Prairies* Vol. 1 June 1844.

cover of ‘the book’ *Memoir of A Tour to Northern Mexico, connected with Col. Doniphan’s Expedition in 1846–1847.*

On 9th May 1846 Wislizenus started his journey with Albert Speyer (*my enterprising countryman, whose name is very well known in the Santa Fe trade, for his energy, perseverance and fearlessness*) leading the travellers (Figure 2). Wislizenus planned to travel along the Santa Fe Trail to Mexico and finish in Upper California. At the time Upper California was a huge swath of mainly ‘undeveloped’ land with many different, sometimes hostile Native Peoples, extending up to the 42nd parallel and west of the then thin strip of land known as New Mexico. The Native tribes (Figure 3), of course, recognised no boundaries created by the interloping white settlers and inhabited much of Mexico as well.

Additionally, relationships between developing North America and Mexico were turbulent in these times so attempting such a



Map 1. Independence to Fort Mann

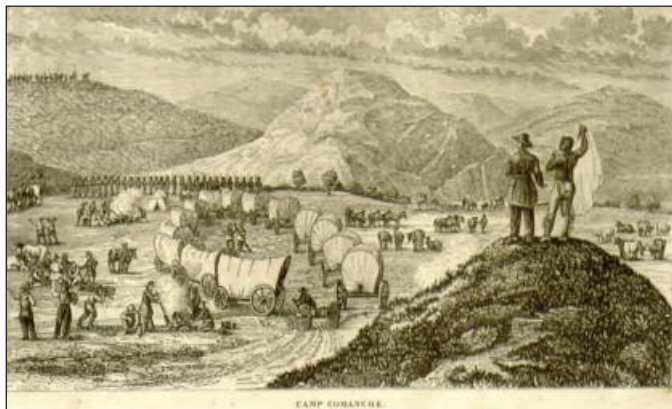


Figure 3. Camp Comanche below Fort Mann. Illustration from Josiah Gregg *Commerce of the Prairies* Vol. 2 June 1844.



Figure 5. Indian alarm on the Cimarron River. Illustration from Josiah Gregg *Commerce of the Prairies* Vol. 2 June 1844.

trip was rather like booking a trip at the start of a pandemic with the hope that it would be resolved by the time of travel – in other words arrival at one’s proposed destination or even survival were questionable. Mexico had never accepted the birth of the Republic of Texas after the defeat of Santa Anna in 1836 but it was the annexation of Texas as a State admitted to the Union of the United States in 1845 and attempted negotiation with Mexico which were to trigger a response. On 24th April 1846 a large Mexican army crossed the Rio Grande and defeated a small US force near Brownsville. The Mexican war had commenced and news of this ‘skirmish’ reached Albert Speyer before the departure but was evidently not considered important in terms of his plans as he was only going to Santa Fe. The New Mexico of 1846 was very different from today with eastern and western borders hard to define. It was not part of the US and had never been governed by Mexico.



Figure 4. *Opuntia macrorhiza* Greer County, Oklahoma. April 2019 at 934m.



Figure 6. *Echinocereus viridiflorus* Chaves County, New Mexico. June 2013 at 1,863m.

Wislizenus gives the eastern boundary with Texas as 104° which would include about 84km of current Texas and the border to the west at 108° which would include about 96km of current Arizona. All references to New Mexico follow the definition suggested by Wislizenus.

Big Blue Camp represented the mustering point of all travellers headed westward and several days were spent here waiting for anyone who had ‘booked passage’ to arrive. Wislizenus graphically describes the scene on the edge of his journey *Towards the east we perceived the blessings of civilization – fine farms, with corn fields, orchards, dwelling houses, and all the sweet comforts of home; towards the west, the lonesome, far stretching prairie, without house or cultivation – the abode of the restless ‘Indian’, the highway of the adventurous white man. The scenery was enlivened by thousands of stock grazing around us and by the daily arrival of new wagons and prairie travellers.* Wislizenus himself

had a covered wagon for all his instruments and was aided by a servant. The 'train or caravan' consisted of 22 large wagons, (each drawn by 10 mules), several smaller vehicles, and 35 men. The caravan started out on 22nd May. Each stop along the way is described, the distance travelled each day, altitude, nature of the geology and any encounters with other travellers, Native tribes or traders.

For such fairly rich description of the flora and Cactaceae, the lack of anything of any great interest is partly indicative of the nature of the terrain, being a little too far north for a great number of cacti and a little disappointing. This trail, however is an old one and many travellers and a few botanists used it before Wislizenus. *Opuntia vulgaris* (probably *O. macrorhiza* Figure 4) is the first mention of any cactus in southern Kansas and some 257km from Big Blue Camp.

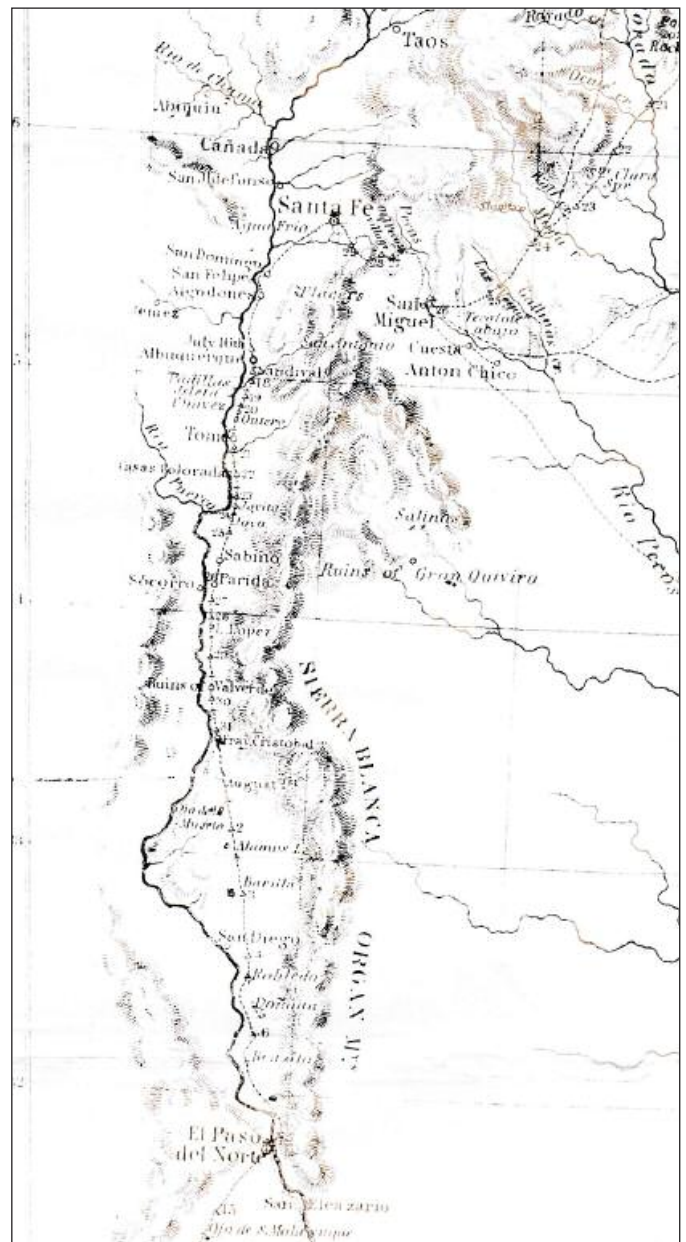
The first plant which Engelmann described as a new species was *Talinum calycinum* from sandy soil near the Cimarron River (Figure 5) in New Mexico. For the sake of brevity, plants described other than Cactaceae are included in the appendix to this article. It had taken 23 days to travel over 595km and reach this point, and climb 384m from Big Blue. Frustratingly he would have crossed through the Oklahoma panhandle at the top of Texas, an area known today for *Echinocereus viridiflorus*. To his credit, he did see this later near Santa Fe and as such it became the first echinocereus Engelmann described to add to his new genus in the prairies about Wolf Creek...between 1829–2134m (Figure 6). One week later and 193km later they reached Rock Creek at 1842m at the north-eastern tip of the Sangre-de-Christo Mountains. Wolf Creek is now crossed by the I25, north-west of Las Vegas, neither of which feature on maps from the 1840s!

Engelmann had important botanical contacts with travellers such as 'Mr. Fendler' who had been to Santa Fe before and noted unusual cacti. There were frequent letters between them from 1846 to 1882. It is highly probable that location and plant details were passed to Engelmann and then connected with the specimens Wislizenus brought back by

subsequent correspondence. In his notes he indicates the flowering time of *Echinocereus viridiflorus* as May and attributes this information to Augustus Fendler who botanised the Santa Fe area in 1846–7 and has made available most valuable and well-preserved collections. In a letter to Engelmann dated 8th



Map 2. West edge to Fort Mann (Sand Creek).



Map 3. Point of Rock down to El Paso.

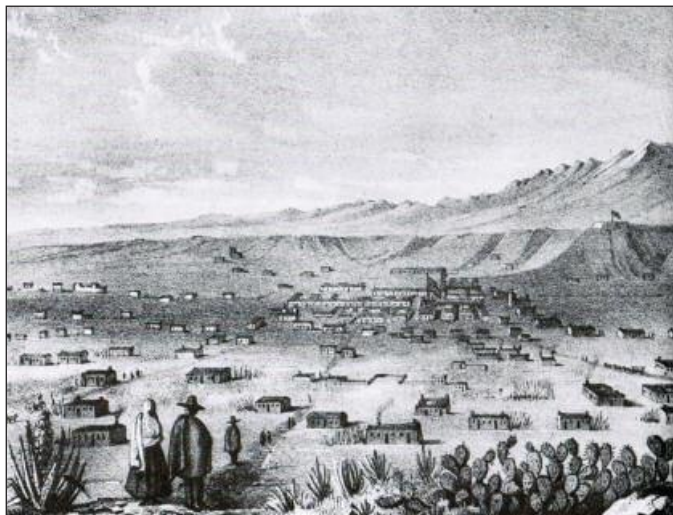


Figure 7. An engraving of Santa Fe in 1846 from Albert's Journal, National Archives Washington DC cropped.



Figure 8. *Cylindropuntia imbricata* Sierra Mojada, Coahuila. April 2014 at 1,231m.

November 1846 Fendler offered to ship these plants back to St. Louis in old sugar barrels which he had managed to procure, the intention being that proceeds from sale of some of these might finance his stay around



Figure 9. *Echinocereus triglochidiatus* White Sands NM, New Mexico. June 2013 at 1,229m.

Santa Fe. Wislizenus describes Santa Fe in some detail as being very much a normal north Mexican town with inhabitants of Spanish, Mexican and mixed descent living in adobe houses although most supplies came from the United States (Figure 7).

Heading south-west towards Santa Fe, across a high plateau of around 1890m and on the black basalt rock known as Wagon mound, Wislizenus writes that *the first (flowerless) specimens of a strange opuntia were found, with an erect, ligneous stem and cylindrical, horridly spinous, horizontal branches.* Engelmann named this *Opuntia arborescens* (almost certainly *Cylindropuntia imbricata* Figure 8) also describing the *horn-coloured spines, with straw-coloured loose sheaths and purple flowers.*

Echinocereus triglochidiatus (Figure 9) was also collected at Wolf Creek in pine woods. The plants collected by Fendler from around Santa Fe flowered in June. Also near Wolf Creek and around Santa Fe, *E. coccineus* (Figure 10) is described. The flowers are noted as *resembling much the last species but E. triglochidiatus* is noted for its larger stems and fewer spines compared to *E. coccineus*.

Wislizenus had planned to look for alternative travelling arrangements from this point southwards as the leader of the caravan, Mr. Speyer normally stopped at this point, however, a week later decided to carry on to Chihuahua. According to information received and despite of the skirmish with Mexico, Chihuahua was 'quiet.' Whilst Mr. Speyer started off with his caravan *on the usual road*



Figure 10. *E. coccineus* DJF 804 Valencia Co. New Mexico (cult.).

heading for the Rio del Norte (as the Rio Grande was called) and aiming for El Paso del Norte, Wislizenus decided to take some time on his own to examine the gold mining and then caught up with the caravan by Albuquerque. There are several pages describing the techniques of mining gold and how, loaded with specimens of gold ore he set off two days later to meet up on 15th July. The route now followed the western edge of the Sierra Blanca and Organ Mountains. About Albuquerque was found another 'new' opuntia, with short clavate joints and shining white spines, which Engelmann called *Opuntia* (now *Corynopuntia*) *clavata*.

Just before Socorro, Wislizenus saw his first mesquite (*Algarobia glandulosa*) on 26th July, which was to accompany him for a large part of the rest of his trip and a large yucca which Engelmann does not describe. Sandwiched between Socorro 225km to the north and El Paso 80km southward is Doña Ana (formerly known as Doñana), lying on the foothills of the Organ Mountains (in 1846 these were known as the Organon mountains) now on the northern outskirts of Las Cruces. Just before Doña Ana, *on the road* Wislizenus found *the largest cactus of the kind that I have ever seen... with enormous fishhook-like prickles, measuring in height 1.2m and in the largest circumference 2.03m. It had yellow flowers.* The precise altitude is not recorded as this was not a night or mid-day stop. Presumably, Wislizenus would have stopped and then caught up with the caravan. He would have been at around 1220m. Engelmann named this plant after the



Figure 11. *Ferocactus wislizeni* Franklin Mtns., El Paso, Texas. April 2012 1,530m.

explorer, *Echinocactus Wislizeni*. This was reclassified by Britton and Rose in 1922 as *Ferocactus wislizeni* (Figure 11). Seeds were collected, the plant not really being practical to transport but another plant was collected and described as one of the few *Mammillariae longimammae* but having ...*rose-coloured petals, darker red in the middle... not yellow flowers and stiffer spines.* This was described as *Mammillaria macromeris* and Engelmann noted the *groove at first tomentose down to the tomentose supra-axillary areola.* Lemaire noticed this groove in transferring it to its current genus as *Coryphantha macromeris* (Figure 12). It was from plants collected here too that *Fouquieria splendens* was described. If you are having difficulty visualising exactly where we are, about 29km, exactly due east on the other side of the mountains lies White Sands where the giant *Echinocereus triglochidiatus* still thrive.

Wislizenus and the caravan continued south towards El Paso del Norte (as the city was known until 1888) where Engelmann named a new genus after our explorer having determined that the plant did not belong to any existing genus, *Wislizenia refracta*. He noted that it was in the habit of *Cleomella*. The name persisted until 2017 when it was transferred to *Cleome* by Mabberley.

Another opuntia, *O. vaginata* was found *on the mountain near El Paso.* It is possible that these were the Franklin Mountains, but Wislizenus refers to exploring limestone mountains south-west of the town so it is more likely to be today's Sierra de Juarez. It was in



Map 4. From El Paso to Chihuahua and south.



Figure 12. *Coryphantha macromeris* Big Bend NP, Brewster County, Texas. March 2011 at 571m.



Figure 13. *Cylindropuntia leptocaulis* in fruit with *Yucca constricta* Gillespie County, Texas. April 2019 at 510m.

flower and fruit but extraordinarily the colour of these is not described. Between 0.9–1.2m high, the plant had straw-coloured loose sheaths on long spines and is now known as *Cylindropuntia leptocaulis* (Figure 13). Explorers in the southern US or Mexico will almost certainly be familiar with this plant, and another mentioned, (*Agave*) *lechuguilla*, whether such encounters were either welcome or more often, not!

On these mountains was also found *Echinocereus dasyacanthus* (Figure 14) but no indication of flower colour is given. Wislizenus had a week in El Paso del Norte and therefore had plenty of time to explore the habitat and make extensive notes on the settlement, at the time a part of the State of Chihuahua. It should be noted that Mexican General Ugarte had

marched through El Paso with 400 men and cannon to oppose Americans if they should invade New Mexico...

In leaving El Paso Wislizenus parted company with Mr. Speyer who took a longer but easier route suitable for heavier wagons towards Chihuahua City, choosing instead the road across sandhills with his lightly-equipped party, led by a merchant from Chihuahua, Mr. Wiek. The two parties left El Paso at the same time on 15th August. As they neared their destination on 23rd all the Mexican travellers decided to make push for the city now 64km away. Mr. Wiek and Wislizenus decided to take two days and entered Chihuahua the following day without incident.

En route to Chihuahua about 161km south of El Paso (probably near La Escuadra), a remarkable botanical discovery was made. I use the word 'remarkable' as I know how difficult this plant is to find bearing a resemblance at first to part of a dead creosote bush sticking out of the ground. The plant was described by Engelmann as *Cereus Greggii* (Figure 15) (now *Peniocereus greggii*) and named after another of Engelmann's correspondents Joseph Gregg who had also collected the plant at Cadena, south of Ciudad Chihuahua. Another plant had been sent to Prince Salm-Dyck by Mr. Potts of Chihuahua who we will hear more of shortly. Unfortunately, the plants sent by both Mr Potts and Wislizenus were dead on arrival despite the remarkable...*thick turnip-shaped root*. Flowering in April and May, the petals are pale purple with reddish green interior sepals.

It cannot be said that Wislizenus was greeted warmly on arrival; in fact they were verbally identified by cries of Tejanos! used in a most disparaging tone. On the day of arrival the governor of the State of Chihuahua was politically, a moderate. His opponent, a man full of anti-American rhetoric, coerced him into resignation the very next day. Despite this and a court appearance a few days later due to his servant discharging guns in a cleaning exercise of which Wislizenus was acquitted, things appeared to be 'stable'. American General Wool had however been summoned to

Chihuahua so the status quo seemed unlikely and 'war fever' took hold. Intelligence also arrived that General Kearny had taken control of Santa Fe. Anti-American feeling was expressed by mobs in various ways including attacking the American hotel.

On 6th September, the Americans were escorted by military attachment to Cosihuiriachi and Wislizenus also decided to leave. When he requested his passport he was informed that he could not leave either the city or State. Essentially he was a prisoner. In the meantime, Mr Speyer arrived with his caravan. He was clearly more adept and used to Mexican ways and soon found his way south. Despite the intercession of Mexican acquaintances, Wislizenus made no headway towards his release. Eventually Mr. Potts who was the proprietor of the mint intervened and persuaded the governor to issue a passport with which he was to be conveyed to Cosihuiriachi – a town based on the discovery of silver to the south-west of Chihuahua. Oddly, Wislizenus did not include this stage of the journey on his map, perhaps because this was an involuntary destination. He received his passport on 11th September and within two days had travelled the 145km and arrived. The assembled Americans there expected to be there for maybe a month but ended up there for six months.

The word Cosihuiriachi is a Tarahumara word meaning 'erect pole' although it is unclear to what this refers. The Tarahumara were one of the indigenous peoples that made up the town and were cave dwellers. The spelling of the town name has no doubt been written 'as it sounded' and even today it is variously known as either Cusihuiriachi, Cusihuiriachic or even Cosiguiriachi depending on which map you use. Wislizenus complained about the insanitary conditions and boredom but he was well-received by two fellow American residents and the prefect of the town who gave him leave to explore the surrounding area.

Botanically, his stay in the town was very productive and several new species were found here in a rather unique town situated in



Figure 14. *Echinocereus dasyacanthus* south of Marathon, Brewster County, Texas. April 2012 at 1,000m.



Figure 15. *Peniocereus greggii* Mina, Nuevo Leon, March 2014 at 621m



Figure 16. *Echinocereus polyacanthus*, Cusihuiriacchi. Late March 2008 at 1,997m.



Figure 17. *Echinocereus polyacanthus*, Cumbres de Majalca, Mid March 2008 at 145m.



Figure 18. *Echinocereus adustus* at Cusihuiriacchi. June 2009 at 100m.



Figure 19. *Echinocereus radians*...
Echinocereus adustus.



Figure 20. *Echinocereus rufispinus*...
Echinocereus adustus.

a valley at 1913m between mountains rising up to 2413m. The whole area is just south of Cuauhtemoc and sits proud of the very high plain that is part of the Sierra Madre.

Engelmann's first description from Cusihuirachi was *E. polyacanthus*. This plant can easily be confused with *E. coccineus* in the greenhouse until it flowers and the different form of the flower makes itself apparent. Because of the time of year Wislizenus was confined here no cactus flowers were seen and are not included in the descriptions, Engelmann confining himself to the size of the stems, whether solitary or clumping and the configuration of the spines. These were the first cacti I saw at the end of March in 2008 but were not in flower (Figure 16). Only the week before I had seen a few of these in full flower in Cumbres de Majalca (Figure 17).

Engelmann then turns his attention to three plants; *Echinocereus adustus*, *E. radians* and *E. rufispinus*. On visiting this location again in June 2009 with Paul Hoxey it was clear how both Wislizenus and Engelmann could have mistaken these for 3 different taxa. *E. adustus* is described as a smaller plant with no central spines. *E. radians* is slightly larger and central spines are present and *E. rufispinus* is larger still with more robust supination. In addition, of course no flowers were available to question this differentiation. (Figures 18–20).

The first descriptions of three mammillarias are also made from this little town. *M. compacta* which was later transferred to *Coryphantha* by Britton & Rose has a most distinctive shape



Figure 21. *Coryphantha compacta*
Cusihuirachi. June 2009 at 2,010m.



Figure 22. *Mammillaria heyderi* subsp.
gummifera Cusihuirachi. June 2009 at 2,010m.

appropriately described by its name always resembling a plant upon which something has sat with quite robust, interlocking spines (Figure 21).

The other two mammillarias remained in the genus, the first being described as *M. gummifera* later re-evaluated by Benson as a variety of *M. heyderi*. The tubercles on this plant are quite angular and it is distinguished by its darker flowers which do not form part of Engelmann's description (Figure 22). *M. barbata* cannot be confused with the former as the radial spines are much thinner, longer and more numerous and each areole bears a single, long, dark hooked radial spine, the flowers being white or pale pink. Engelmann indicates that this is much less common in the area than *M. gummifera* and indeed I did not see it on either of my visits.

In total 17 new species of flora were recorded as a result of the detour forced on



Figure 23. *Echinocereus pectinatus* Sierra Parras, Coahuila. April 2014 at 1,906m.

Wislizenus but by the end of February a *glorious victory* of the American armed forces had been received by wire from friends in Chihuahua. Whilst a section of the population, fearing revenge, fled to the hills, Wislizenus left for Chihuahua on 3rd March 1847. On entering the city he recorded his pride and surprise of the American soldiers from his own state of Missouri who had clearly seen hard action in the field. Wislizenus decided to leave with Colonel Doniphan whose orders had



Figure 24. *Echinocereus reichenbachii* subsp. *caespitosus* Palo Pinto County, Texas, April 2012 at 471m.

been to meet with General Wool who had not arrived so in the absence of new orders and with Wislizenus appointed to the role of much-needed surgeon, 600 men marched to San Pablo, 80km south-east of Chihuahua. News was reached of a large Mexican force amassing to attack Chihuahua so the Americans returned to defend the city. The rumoured enemy 'failed to show' and now with orders received, they left for Saltillo on 25th April.



Figure 25. *Echinocereus enneacanthus* El Pilar, Coahuila. March 2008 at 1,185m.

The cactus explorer's collecting activities were not entirely curtailed by his new responsibilities as a surgeon and very little action was seen from this point onwards, the troops encountering many scenes of destroyed ranchos and the occasional Mexican spy. It is clear from Engelmann's notes that despite Wislizenus focussing his narrative on the trip, economy and other matters, plants of interest were still found. Only two days later they reached Bachimpa. A plant one-foot high was on Engelmann's desk as he described *Echinocereus dasyacanthus* and the plant collected at Bachimpa (*E. pectinatus*) helped him to differentiate *E. dasyacanthus* from its more pectinate 'cousins' (*E. pectinatus* and *E. caespitosus*, the latter previously collected by Lindheimer in Texas. Figures 23 & 24) in the description of the spination having longer, *not appressed spines* and *the larger number and size of the central spines, &c.* *E. caespitosus* was finally re-allocated to *E. reichenbachii* subsp. *caespitosus*.

On the same day they marched into San Pablo (now known as Delicias) on the creek of the same name, about 13km below Santa Cruz. Wislizenus does not mention any cacti, however Engelmann describes another plant of which both a dried and living specimen had been received, *Echinocereus enneacanthus*. This is a very variable plant in habitat and Engelmann's specimen at 12.7–15.2cm high is clearly a small plant. The spines are described

as *stout, angular, like those of E. triglochidiatus* so there seems little doubt that he was looking at the plant we recognise today however he describes the flowers as red which requires a degree of liberal interpretation to agree with the flowers seen in habitat which are usually described as purplish-pink with a darker centre. The largest-stemmed plants are found in the open plain in full sun (Figures 25 & 26).

Wislizenus calculated the march over the next 8 days to the next cactus location to have been 298km. On the 7th May they travelled over a wide plain to reach the Hacienda de San José de Pelayo close to the Durango/ Chihuahua border, on the road to Parras. Thirty or so armed inhabitants had been organized by a military company and Lt. Colonel Mitchell's vanguard had taken them prisoner but then returned the arms to the remainder as a defence against Indians. The first of the two plants Engelmann described as *Echinocactus flexispinus*. The key to working out the modern name is to examine the specific epithet and think of cacti with flexible spines (when young) which may lead

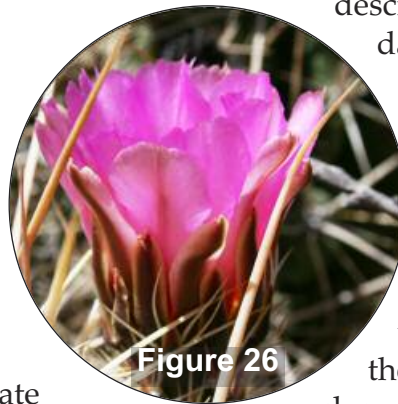


Figure 26



Figure 27. *Ferocactus hamatacanthus* Escalon, Chihuahua, Mexico. June 2009 at 1,200m.

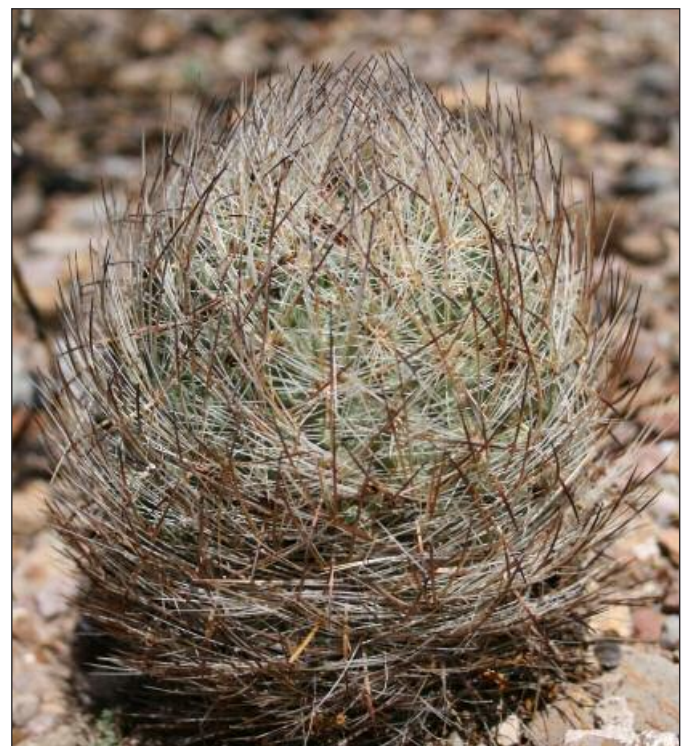


Figure 28. *Sclerocactus unguispinus* Escalon, Chihuahua, Mexico. June 2009 at 1,200m



Figure 29. Superb spination on *Sclerocactus unguispinus* El Diamante, Durango. June 2009 at 1,330m.

you to something which Mühlenpfordt had already described in 1846 but mis-spelt as *Ferocactus hamatocanthus*. Britton & Rose revised this name in 1922 to *Ferocactus hamatacanthus* with a list of names describing the same plant after Mühlenpfordt.

The other plant described from this Hacienda could not be more different. *Echinocactus unguispinus* was transferred by Britton & Rose (1922) to *Echinomastus* before finding itself as *Sclerocactus unguispinus* (Taylor N.P. 1987) and could not be more different than an 'Echinocactus.' Engelmann describes this as a very elegant plant...with large recurved spines, especially the stoutest central...of a bluish horn colour, with a brown point...curved and bent downwards like a large fang (Figure 29). The downward pointing central spine can be less pronounced (Figure 28) which shows off the greater number and disproportionately long upper radials which form a cup-like basket around the stem.

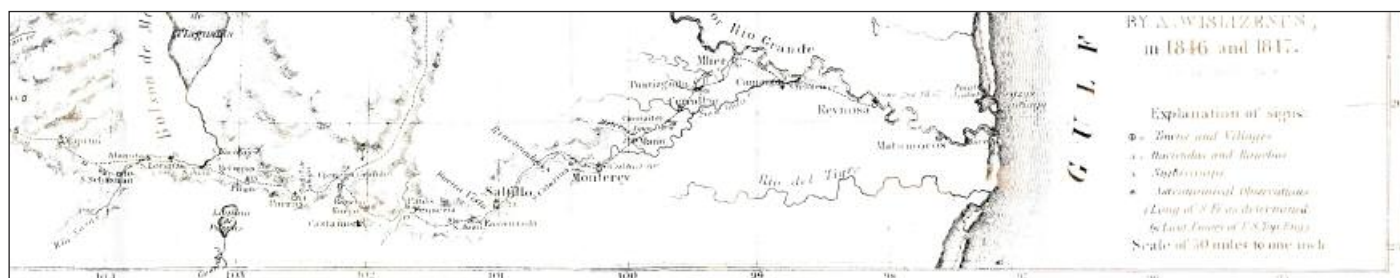
The journey continues for another 595km south to Cadena and then eastwards through Mapimi, Parras, and Saltillo, along the valley into the State of Nuevo Leon and Rinconada.



Figure 30. *Neolloydia conoidea* José Maria Morelos y Pavón, Coahuila. June 2009 at 1,140m.

From their highest location, Encantada in Chihuahua at 1860m to Rinconada is only 77km but the drop in altitude, Wislizenus calculated is 830m. It is here that Engelmann makes his last new description although mention is made along the route from Cadena of other cacti which have already been described. The location of Rinconada on the map of Wislizenus indicates it is just inside the modern Coahuila border not in Nuevo Leon.

Mammillaria strobiliformis is described as growing on rocks with the appearance of a pineapple or cone, tomentose in the groove and axills...flowers central, 3 to 5 in a cluster...petals deep purple. The groove indicates a strong probability that this is a coryphantha but subsequent literature is uncertain. The name *Mammillaria strobiliformis* was also used by Mühlenpfordt and Britton and Rose refer his plant to *Coryphantha sulcata*, specifically noting "Non Engelmann 1848." Purple flowering coryphanthas are not common – particularly any producing flowers in a cluster and there are none in Rinconada which meet this description. Subsequent research has revealed that this plant is in fact *Neolloydia conoidea* – a



Map 5. Single southern file.

Appendix: Plants found by Wislizenus and described by Engelmann.

Original name	Page.	Current name (if different)	Reclassified by:
<i>Cereus greggii</i>	102	<i>Peniocereus greggii</i>	Britton & Rose 1909
<i>Echinocactus flexispinus</i>	111	<i>Ferocactus hamatacanthus</i>	Britton & Rose 1922
<i>Echinocactus unguispinus</i>	111	<i>Sclerocactus unguispinus</i>	N.P.Taylor 1987
<i>Echinocactus wislizeni</i>	96	<i>Ferocactus wislizeni</i>	Britton & Rose 1922
<i>Echinocereus adustus</i>	104		
<i>Echinocereus caespitosus</i>	110	<i>Echinocereus reichenbachii</i> subsp. <i>caespitosus</i>	Blum & Lange 1998
<i>Echinocereus coccineus</i>	93adnot		
<i>Echinocereus dasyacanthus</i>	100		
<i>Echinocereus enneacanthus</i>	111		
<i>Echinocereus pectinatus</i> (Scheidw.)	109		
<i>Echinocereus pectinatus</i>	110		
<i>Echinocereus polyacanthus</i>	104		
<i>Echinocereus radians</i>	104	<i>Echinocereus adustus</i>	Britton & Rose 1922
<i>Echinocereus rufispinus</i>	104	<i>Echinocereus adustus</i>	Britton & Rose 1922
<i>Echinocereus triglochidiatus</i>	93		
<i>Echinocereus viridiflorus</i>	91		
<i>Mammillaria barbata</i>	105		
<i>Mammillaria compacta</i>	105	<i>Coryphantha compacta</i>	Britton & Rose 1922
<i>Mammillaria gummifera</i>	105	<i>Mammillaria heyderi</i> var. <i>gummifera</i>	L.D. Benson 1975
<i>Mammillaria macromeris</i>	97(-98)	<i>Coryphantha macromeris</i>	Lemaire 1868
<i>Mammillaria strobiliformis</i>	113	<i>Neolloydia conoidea</i>	Britton & Rose 1922
<i>Opuntia arborescens</i>	90	<i>Cylindropuntia imbricata</i>	Knuth 1936
<i>Opuntia clavata</i>	95	<i>Grusonia clavata</i>	Robinson 1973
<i>Opuntia vaginata</i>	100	<i>Cylindropuntia leptocaulis</i>	Knuth
<i>Bouvardia glaberrima</i>	106		
<i>Chilopsis glutinosa</i>	94	<i>Chilopsis linearis</i> var. <i>glutinosa</i>	Fosberg 1936
<i>Delphinium wislizeni</i>	106		
<i>Dithyrea wislizeni</i>	95	<i>Dimorphocarpa wislizeni</i>	Rollins 1979
<i>Eriogonum atrorubens</i>	108	<i>Pterogonum atrorubens</i>	Gross 1913
<i>Eryngium heterophyllum</i>	106		
<i>Fouquieria splendens</i>	98		
<i>Geranium pentagynum</i>	90		
<i>Greggia rupestris</i>	114		
<i>Guaiacum angustifolium</i>	113		
<i>Heuchera sanguinea</i>	107	<i>Heuchera</i> × <i>rosea</i>	Zabel 1893
<i>Larrea glutinosa</i>	93	<i>Larrea tridentata</i> subsp. <i>glutinosa</i>	Murray 1982
<i>Linum aristatum</i>	101	<i>Cathartolinum aristatum</i>	Small 1907
<i>Lobelia mucronata</i>	108	<i>Dortmanna engelmanniana</i>	Kuntze 1891
<i>Lobelia pectinata</i>	108	<i>Lobelia fenestralis</i> var. <i>pectinata</i>	Wimm 1948
<i>Lobelia phyllostachya</i>	108	<i>Lobelia graminea</i> var. <i>phyllostachya</i>	Wimm 1953
<i>Martynia arenaria</i>	100		
<i>Martynia violacea</i>	101		
<i>Penstemon coccineus</i>	107		
<i>Phaseolus bilobatus</i>	109		
<i>Pinus brachyptera</i>	89	<i>Pinus ponderosa</i> subsp. <i>brachyptera</i>	Silba 2011
<i>Pinus chihuahuana</i>	103	<i>Pinus leiophylla</i> var. <i>chihuahuana</i>	Shaw 1909
<i>Pinus edulis</i>	88	<i>Caryopitys edulis</i>	Small 1903
<i>Pinus macrophylla</i>	103	<i>Pinus engelmannii</i>	Carrière 1854
<i>Pinus osteosperma</i>	89		
<i>Pinus strobiformis</i>	102	<i>Pinus ayacahuite</i> var. <i>strobiformis</i>	Shaw
<i>Talinum calycinum</i>	88	<i>Phemeranthus calycinus</i>	Kiger 2001
<i>Wislizenia refracta</i>	99	Genus erected by Engelmann in honour > <i>Cleome refracta</i>	Mabberley 2017
<i>Zinnia intermedia</i>	107		

common plant in Coahuila but nevertheless beautiful when in flower (Figure 30).

Leaving this last collection point of potential new species, Wislizenus and the army marched on through Monterey and Camargo and on to Reynosa on the Rio Grande. Here they boarded a steamboat sailing down the river through Matamoros and on to the mouth of the river where they had to wait three days until ships were ready in Brazos, 14.5km up the coast. On 9th June they boarded and made it to New Orleans after a voyage of 7 days. He arrived in St Louis in early July after 14 months of travel and detention in Cusihuirachi.

Early in 1848 Wislizenus went to Washington in connection with the publication of his new book and frequented the house of George P. Marsh, a member of the House of Representatives, paying close attention to Lucy Crane, the sister of Mrs. Marsh. Later in 1848, he had to return to St. Louis to help with the cholera epidemic, suspending any development of the relationship with Lucy. In February 1850, Wislizenus joined Mr. Marsh, (now US Minister to Turkey) his wife and sister-in-law, in travelling to Constantinople where he married Lucy only 5 months later. He travelled home via his native Germany and after looking at California as a potential home decided in favour of St. Louis where he spent the rest of his life, passing away peacefully on 23rd September, 1839.

Literature

Britton, N.L. & Rose, J.N. (1922). New Genera of Cactaceae. *Bull. Torrey Botanical Club* 49:252

- Britton, N.L. & Rose, J.N. (1963). *The Cactaceae. Descriptions and Illustrations of Plants of the Cactus Family*. Volumes III and IV. Dover Publications, Inc., New York.
- Dicht, R.F. & Luthy, A.D. (2003). *Coryphantha. Cacti of Mexico and Southern USA*. Springer-Verlag, Berlin Heidelberg.
- Engelmann, G. (1848). *Sketch of the botany of Dr. A. Wislizenus's Expedition to Santa Fe, Chihuahua, Parras, Saltillo, Monterey and Matamoros*. (printed separately from a "Memoir of a Tour to Northern Mexico in 1846 and 1847, by A. Wislizenus, M.D.") Washington, Tiptree & Streeper.
- Fendler, A. (1847). Correspondence to G. Engelmann 8th November 1846 (source; Biodiversity Heritage Library)
- Gregg, J. (1844). *Commerce of the Prairies or The Journal of a Santa Fé trader during eight expeditions across the great western prairies and a residence of nearly nine years in Northern Mexico* (two volumes). New York, Henry G. Langley and London, Wiley & Putnam.
- Wislizenus, F.A. (1848). *Memoir of a tour to Northern Mexico, connected with Col. Doniphan's Expedition in 1846 and 1847*. Washington, Tiptree & Streeper.
- Wislizenus, F.A. (1869). *Memoir of a tour to Northern Mexico, connected with Col. Doniphan's Expedition in 1846 and 1847*. The Rio Grande Press, Inc., Glorieta, New Mexico.
- Wislizenus, F.A. (1912). *A journey to the Rocky Mountains in the year 1839*. Saint Louis Missouri Historical Society, Nixon-Jones Printing Co.

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MY MEXICAN MEMORIES (3)

Zlatko Janeba continues his explorations in Mexico and shows us some familiar plants in their natural habitats. Photographs by the author.

In the morning (13.2.2007) I scouted the flat area around our campsite west of Tecolotes (Zacatecas). Among creosote bushes I found *Echinocactus horizonthalonius*, *E. platyacanthus*, *Echinocereus enneacanthus* (Fig. 1), *E. pectinatus* (Fig. 2), *Echinofossulocactus* aff. *lloydii*, *Escobaria* sp., *Ferocactus pilosus*, *Lophophora williamsii* (Fig. 3), *Mammillaria* sp., and *Yucca carnerosana*.

Not far from our camping site were rocky hills with some (presumably) abandoned mines. We decided to spend some time there. During our climb we could observe *Echinocactus platyacanthus*, *Echinocereus pectinatus*, flowering *Mammillaria pottsii*, flowering *M. formosa* ssp. *chionocephala*, *Neolloydia conoidea*, *Opuntia microdasys* (Fig. 5),

Bursera fagaroides, *Dasyilirion* sp., *Hechtia* sp., and *Euphorbia antispyllitica*. Only at the top of the hill I also observed several silvery clumps of *Tillandsia recurvata*, growing both on the rocks and on the bushes. At the bottom of the hill (at an elevation of 1840–1850m), *Agave lechuguilla* was so common that it was almost impossible to walk around there. I remember it very well. When I was taking the picture of *O. microdasys* (Fig. 5), I stepped back and one of the terminal spines of *A. lechuguilla* got stuck directly into a vein of my calf. The puncture was bleeding badly, I could not stop it for a while. Luckily, everything is so sterile under the hot Mexican sun, that there were no further consequences (no infection) later.



Figure 1. Landscape next to our camping site with *Echinocereus enneacanthus*, west of Tecolotes, Zacatecas.



Figure 2. *Echinocereus pectinatus* west of Tecolotes, Zacatecas.

Talking about my vein, well, it was not the only puncture that day. Only a little while later when leaving the area, we got a flat tyre. But nothing could stop us and after we replaced it with the spare wheel, we continued further. Our next goal was Sabana Grande (Zacatecas). We wanted to find *Echinocactus* × *diabolicus*, a natural hybrid between *Echinocactus horzonthalonius* and *E. platyacanthus*, which had been reported from Sabana Grande area. It



Figure 3. A nice specimen of *Lophophora williamsii* west of Tecolotes, Zacatecas.

was actually described in 2006 as *E. horzonthalonius* ssp. *diabolicus*. Although easily distinguishable from both parent species, the seeds were reported to be more similar to those of *E. horzonthalonius*. That is probably why it was originally described under *E. horzonthalonius*. And we wanted to see these plants in the habitat.

But we were not lucky enough that day. The



Figure 4. An old-timer *Echinocactus platyacanthus* guarding the hilly area south of Sabana Grande, Zacatecas.



Figure 5. *Opuntia microdasys* west of Tecolotes, Zacatecas. For this picture I paid dearly, with my calf vein being punctured by a terminal spine of *Agave lechuguilla*.

plants were supposed to be quite rare in the field and without exact GPS data the chance to find them was very low. We did not see any *Echinocactus* × *diabolicus* but it was a very beautiful area just south of Sabana Grande (Fig. 4), where we saw many other nice cacti. The most common cactus there was probably *Ariocarpus retusus*. We saw dozens of them. They were quite variable and very photogenic (Figs. 6 & 7). Some of them were very large (about 30cm in diameter) and old. An interesting form of ariocarpus was also reported from Sabana Grande, later named as *A. retusus* ssp. *pectinatus*. Short pectinate spines are typical for this nice form, which are especially visible in juvenile specimens. But we did not see it either. So what else could we see? Apart from echinocacti (*E. horizonthalonius* and *E. platyacanthus*) and ariocarpus already mentioned before, we found also *Escobaria* sp.,



Figure 6. This large *Ariocarpus retusus* was almost 30cm in diameter, south of Sabana Grande, Zacatecas.



Figure 7. A smaller and younger specimen of *Ariocarpus retusus* south of Sabana Grande, Zacatecas.

Neolloydia conoidea (ceratites), *Thelocactus hexaedrophorus*, *Dasylirion* sp. and my beloved *Agave lechuguilla*! Similarly to the ariocarpus, *T. hexaedrophorus* was very common there, as well as highly variable (Figs. 8 & 9). Especially the spination varied a lot. We saw spines long and short, red and straw-yellow, straight and sticking out or curved and depressed to the body. Thelocacti from Sabana Grande (Zacatecas) are sometimes called *T. hexaedrophorus subcostatus*.

We made another short stop further south from Sabana Grande (1830m), not too far from the previous place (we didn't want to give up the "diabolicus"). On low limestone hills we observed more or less the same vegetation as before. Again large ariocarpus plants. The largest "ario" had about 35cm in diameter (Fig. 10), some specimens were even multiheaded.



Figure 8. *Thelocactus hexaedrophorus* with superb reddish, long and almost straight spines, south of Sabana Grande, Zacatecas.



Figure 9. A bigger plant of *Thelocactus hexaedrophorus* with straw-yellow spination, south of Sabana Grande, Zacatecas.



Figure 10. One of the largest specimens of *Ariocarpus retusus* we saw that day. It was almost 35cm in diameter. South of Sabana Grande, Zacatecas, at an elevation of 1830m.

Really impressive plants. And several specimens of *Echinocactus platyacanthus* were also indeed gigantic, some being over 2m tall. And as a bonus we found several well-hidden *Lophophora williamsii* plants (Fig. 11).

We made the third stop in the area south of Sabana Granda, this time in the mudflat dominated with creosote bush (Fig. 12). We tried to look for *Ariocarpus kotschoubeyanus* there, but we found only *Echinocereus enneacanthus*, green mammillarias (probably *M. grusonii*), and several *Glandulicactus (Ancistrocactus) uncinatus*, some of them with with really superb spines (Fig. 13).

Then we drove up to the place called Puerto del Rosario, in the direction to Cardito. There, at an elevation of some 1970m we could observe various cacti growing on limestone



Figure 11. *Lophophora williamsii* at an elevation of 1830m, south of Sabana Grande, Zacatecas. The plants were hiding under the bushes and deep in the soil.

slopes, namely *Coryphantha palmeri*, *Echinocactus horizonthalonius*, *Ferocactus hamatacanthus*, *F. pilosus*, *Glandulicactus uncinatus*, *Cylindropuntia tunicata*, *Opuntia microdasys*, some other opuntia species, yuccas and agaves. We also found three mammillaria species there, *M. aff. grusonii*, *Mammillaria formosa* ssp. *chionocephala* in flower (Fig. 14), and *M. pottsii* in flower (Fig. 15).

We later visited limestone hills east of Puerto del Rosario (direction to Tanquecillos), where we discovered *Echinofossulocactus aff. multicostatus* in flower, *Neolloydia conoidea* (including a crested form of it), *Dasilirion* sp., *Yucca* sp., and some opuntias.

As the sun was going down, we made our last quick stop south of Guadalupe Victoria, just next to Hwy 54 leading towards Saltillo. It



Figure 12. Richard “Ríša” Kalas taking a photo of *Glandulicactus (Ancistrocactus) uncinatus*, south of Sabana Grande, Zacatecas.



Figure 13. Quite a large plant of *Glandulicactus uncinatus* with dense and long spination, south of Sabana Grande, Zacatecas. Noticeable are the developing flower buds at the top of the plant. The same specimen as in Figure 12.

was almost impossible to shoot any good photos anymore. We saw again *Ariocarpus retusus*, *Echinofossulocactus* aff. *multicostatus*, *Neolloydia conoidea*, and huge specimens of *Echinocactus platyacanthus*.

Fairly worn out, we ended up in one of the hotels in General Cepeda. As a bonus, we were



Figure 14. Flowering *Mammillaria formosa* ssp. *chionocephala* southwest of Puerto del Rosario, Zacatecas, at an elevation of 1970m.



Figure 15. *Mammillaria pottsii* with flowers, southwest of Puerto del Rosario (1970m), Zacatecas. The flowers of this relatively abundant and widespread mammillaria (USA and Mexico) are quite small (usually less than 1cm in diameter) and not very attractive.

invited for a dinner by the owners of that place and it turned out to be a very pleasant evening, while practising our terrible castellano.

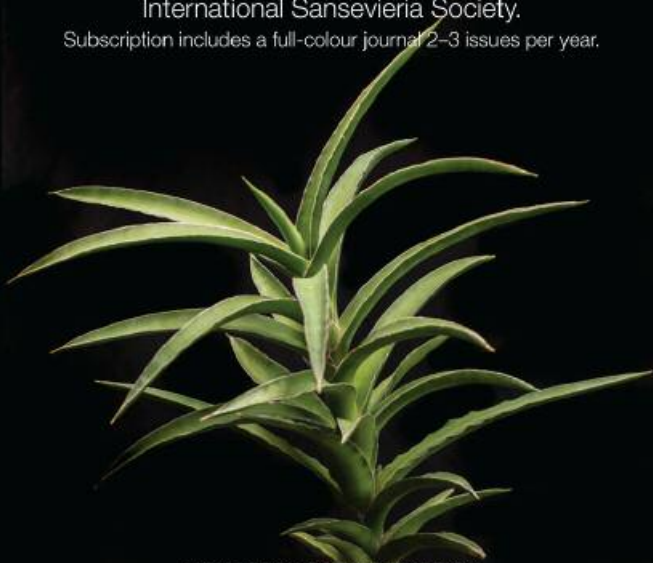
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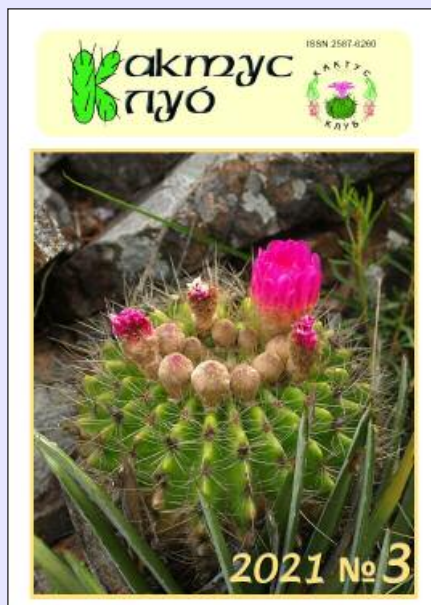
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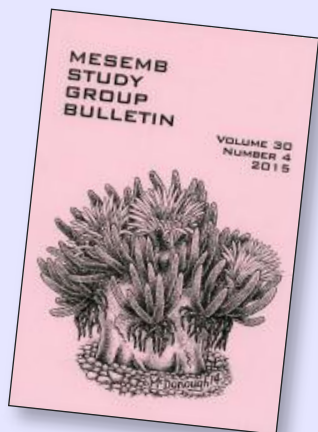
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<http://www.arbeitsgruppe-echinocereus.de>

International Stapeliad Group



Who are we?

The International Stapeliad Group would like to be a focal point for all ascleps friends to discover and experience the cosmos of this extraordinary plant family together. Our goal is to promote contact and exchange of experience among our members. Such a lot of information, questions and experiences are waiting to be shared and discussed together. No matter whether the culture of the plants is



concerned, having visited them in their habitats or simply the enjoyment of your favourite plant - in an international committed community, the exchange with like-minded people is not only fun but also leads much more efficiently to success.



What do we offer?

Our online journal, the Stapeliad Journal, is published twice a year in German and in English and is available to all members for download. Besides the contributions from both nationally and internationally recognized authors, it contains many images of outstanding quality. For us, the ascleps are in our focus and so we want to illuminate these plants from all sides, highlight their beauty and uniqueness and simply make you want to deal intensively with this highly specialized family. Both experienced collectors, as well as beginners, will find in the International Stapeliad Group a meeting place for all friends of the asclepiadoideae at home and abroad.

In addition, we offer on our homepage an encyclopedia section with many plant portraits that are constantly being extended. Besides literature references and a collection of links, there is much more to discover. Visit us at <https://stapeliads.eu> and dive into the world of ascleps.

For the future we also plan annual face-to-face meetings with lectures, workshops, and plant exchanges.

Do you have any questions concerning the ISG? Then contact us at info@stapeliads.eu

Roland Reith

First Chairman International Stapeliad Group

Charity no. 290786


Further details available from our Membership Secretary:

Simon Snowden,
58, Cockshutts Lane,
Oughtbridge, Sheffield,
S35 0FX UK.
Tel: +44(0)114 2862120.
Email: membership@bcss.org.uk



CactusWorld
Volume 29 No. 4
December 2021
Journal of the British Cactus and Succulent Society

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For more informations:
igor.drab@gmail.com



CACTACEAE etc. 1/2022
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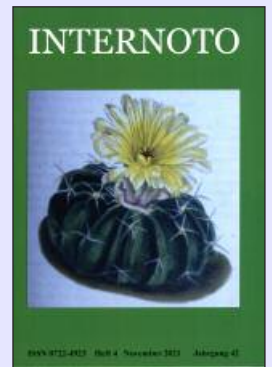
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Website: <http://www.cactus-mall.com/sedum/>
 Download information leaflet [here](#)

Internoto

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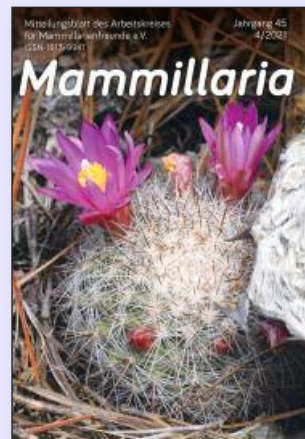
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Articles in English as well as German.



http://www.mammillaria.eu/en_index.html

Succulenta



First published in 1919, this is the journal of the Dutch Cactus Society, *Succulenta*.
 Now published 6 times a year, this journal has a long distinguished history.
 Dutch with English summaries.

<http://www.succulenta.nl>

Kaktusy i Inne

Polish and European cactus journal *Kaktusy i Inne* 12(2) has been published, with four articles in English.



In this issue among others: a new subspecies of *Espostoa huanucoensis*, about *Echinofossulocactus crispatus*, a new nothogenus *Arthronopsis*, about uncommon grafting methods.

To subscribe, visit the new subscription page, for *Kaktusy i Inne* in both PRINTED or DIGITAL form at a reasonable price of 4€ per year.

Usually half of its contents also in English (occasionally Spanish).

Older issues of the journal are available at https://www.cactuspro.com/biblio/en:kaktusy_i_inne.

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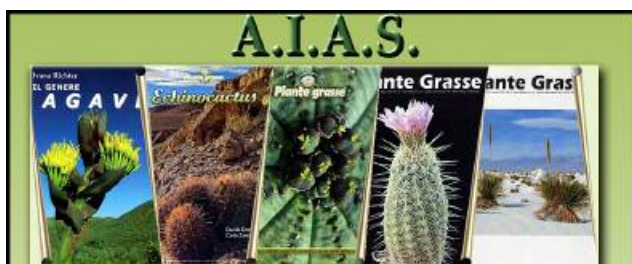
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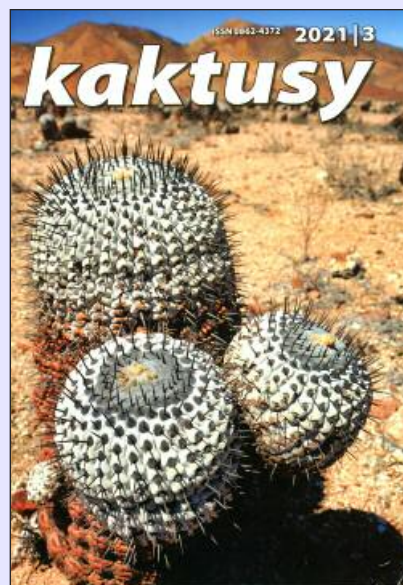


Piante Grasse is the journal of the Italian Succulent Society (A.I.A.S.), founded in 1979.

It is published in Italian 4 times a year, with articles about New and Old World species, botanical gardens, journeys, succulent propagation, care and health.

Annual Subscription, including a thematic Special Number and a seed list: 40€ (Italy) or 50€ (outside Italy). Articles from foreign authors are welcome.

Visit our website: <http://www.cactus.it> or write to presidenza.nazionale@aia.info.



Kaktusy is an international (Czecho-Slovak) journal about cacti and succulents with a lot of interesting articles (travelling, descriptions, growing, exhibitions, books, taxonomy) published since 1965. It is in the Czech language with summaries in English and German.

Price: 180 CZK + postage (about EUR 8 + postage or about USD 11 + postage). 35€ for 2018.

Details from vladsedivy@centrum.cz
<http://www.cs-kaktusy.cz>

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President: Dr. Jörg Ettelt, Mozartstraße 44, D-59423 Unna, Tel. +49 2303 968196, E-Mail: praesident@fgas-sukkulenten.de

The Tephrocactus Study Group

Publishes articles principally about the smaller South American Opuntias, including such genera as *Cumulopuntia*, *Punotia*, *Maihueniopsis*, *Tephrocactus* and *Pterocactus*. The smaller North American Opuntias are also sometimes included.

Since 2013, the journal has no longer been printed but all the journals are available as

free PDF downloads at [the Cactus Explorers website](http://theCactusExplorers.com)

Everyone is welcome to attend the annual meeting to enjoy talks and buy plants.

Secretary: John Betteley, 25, Old Hall Gardens, Coddington, Newark, Notts. NG24 2QJ U.K. Tel: +44(0)1636 707649

johnbetteley4@gmail.com

<http://www.tephro.com>

Opuntia Web



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ianneilwoolnough@gmail.com





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For more information please contact

sulcohilli@gmx.ch

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Echinocereus pectinatus www.pectinatus.de
Flower galleries of *Echinocereus pectinatus*



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Pavel Pavlicek

New seed list for 2020/21

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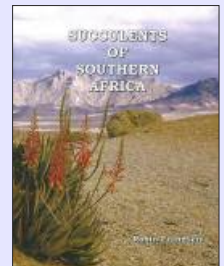
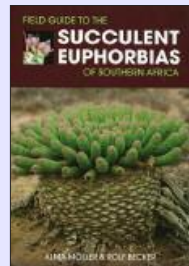
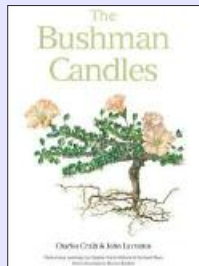
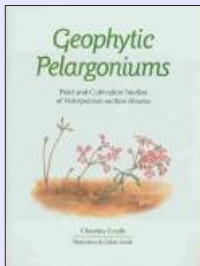
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