

The Cactus Explorer

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

Number 25

ISSN 2048-0482

October 2019

1 **Aeonium on La Palma**

2 **The genus Stenocactus**

3 **Arrojadoa marylanae**

4 **Mexican Memories**

5 **Opuntia rugosa**

IN THIS EDITION

Regular Features		Articles	
Introduction	3	Arrojadoa marylandae	10
News and Events	4	Opuntia rugosa	23
In the Glasshouse	10	The genus Stenocactus	26
On-line Journals	15	My Mexican Memories	36
The Love of Books	18	Aeonium species and five natural hybrids	
Succulents on a Plate	21	of La Palma (Canary Islands)	40
Society Pages	64		
Plants and Seeds for Sale	69		
Books for Sale	75		

Cover Picture: Santa Cruz, Barranco del Agua, *Aeonium davidbramwellii*. Photograph by Marco Christini. See the article about aeoniums on La Palma starting on [page 40](#).

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.

Publisher: The Cactus Explorers Club, Briars Bank, Fosters Bridge, Ketton, Stamford, PE9 3BF U.K.

The Cactus Explorer is available as a PDF file downloadable from www.cactusexplorers.org.uk

The Editorial Team:

Organiser: Graham Charles graham.charles@btinternet.com

Paul Hoxey paul@hoxey.com

Zlatko Janeba desert-flora@seznam.cz

Martin Lowry mrtnlwr@gmail.com

This issue published on
22nd October 2019

Opinions expressed in the articles are those of the authors, and not necessarily those of the editorial team.

©The Cactus Explorer may be freely distributed whilst the copyright of the text and pictures remains with the authors and photographers. Permission is required for any use other than reading, printing or storage.

INTRODUCTION

Time of Change

As the nights get longer and our plants here in the UK start to wind down for their winter rest, I reflect on a hectic summer. It feels no time since I watered my cacti for the first time in April and now I am preparing to move them to their winter quarters.

I look back on so many enjoyable moments in the glasshouse as well as days out at cactus events. Most recently, the *CactusWorld* **LIVE!** event showed the BCSS at its best. Lullingstone Castle, home of BCSS patron Tom Hart Dyke, proved to be a splendid rural locality and the sun shone, especially on the Saturday. People love buying plants and crowds turned out and took away boxes full of new treasures. I had my best ever sales day on the Saturday. The 45 class show was an inspiration to visitors with many high quality plants on display. The specially designed Prize Cards, Certificates, Awards of Merit and Diplomas (dedicated to the memory of the late George Hollis) were an added attraction and I was delighted to win some of these unique momentos of the day.

Visitors were given a copy of the new booklet *The Simple Guide to Growing Cacti and Succulents*, recently published by the BCSS. I wrote this 32 page, A5 booklet to outline the basics of cultivation, especially for novices. It will be used to promote the BCSS and will also be available from UK Garden Centres. I congratulate the BCSS and everyone who helped to organize this initiative and hope that similar events will be held in the future.

Sadly, we also lost some of our friends this year. David Hunt, whom I got to know when we worked on the *New Cactus Lexicon*, passed away on 20th May. He was a really influential botanist in the field of Cactaceae and since he was so willing to write down what he knew, we have a rich legacy of his work in print for future generations to learn from and enjoy. A fitting appreciation, written by his great friend Nigel Taylor, can be found in the September issue, Volume 37(3), of *CactusWorld*.

On the 12th August, Gordon Rowley died



Part of the competitive show (right) and plant sales at the *CactusWorld* **LIVE!** event.

just a few days after his 98th birthday. His remarkable life and numerous publications made him the best known British cactophile worldwide. It was many years ago that he discussed with me the future of his exceptional library of succulent literature. I suggested setting up a charitable trust to preserve it and now his executors will carry out this plan. With the support of the BCSS, the library is now in safe storage and we will look for a place to house it permanently. We are already receiving donations for the project including the valuable library of the late David Hunt. More information about the trust will appear in later editions of the *Cactus Explorer*.

Readers of *International Cactus Adventures* will have been shocked to read that Volume 31(2) of 2019 will be the last issue of this long running journal, published since 1988. I pay tribute to Joël Lodé, the creator and editor, for all his work on this landmark journal. He explains that the economics of a printed subscription publication have become unsustainable, in part due to competition from free on-line journals. Sorry Joël! I hope in future we will be able to read your words in the *Cactus Explorer*.

Speaking of on-line journals, the latest issue of the *Essex Succulent Review* is a great read. I recommend you [download it](#) immediately!

Graham Charles

NEWS AND EVENTS

The Cactus Explorers Club 14th Meeting in 2019

Held from August 16 to 18th 2019
The Conference Centre
Stamford Court, Leicester.

Moving the date did not deter regular attendees and the event was sold out with 59 participants enjoying two days of talks, good company and the occasional glass.

I am planning to hold next year's event at a similar time, so as soon as the University confirms availability, I will invite past attendees to do it all again in 2020. If you would like to attend for the first time, please [email me](#) and I will let you know as soon as I know if space is available.

Graham Charles

Make a note in your 2020 Diary!

The BCSS National Show is held only every 4 years and 2020 is the year!

Marshall Arena, Milton Keynes
3rd-4th July 2020

The venue is within easy reach of London so we hope to see many international visitors.

The Competitive Show has 142 classes.

Schedule available from the BCSS.

The Event of the Cactus Year!

Tephrocactus Study Group

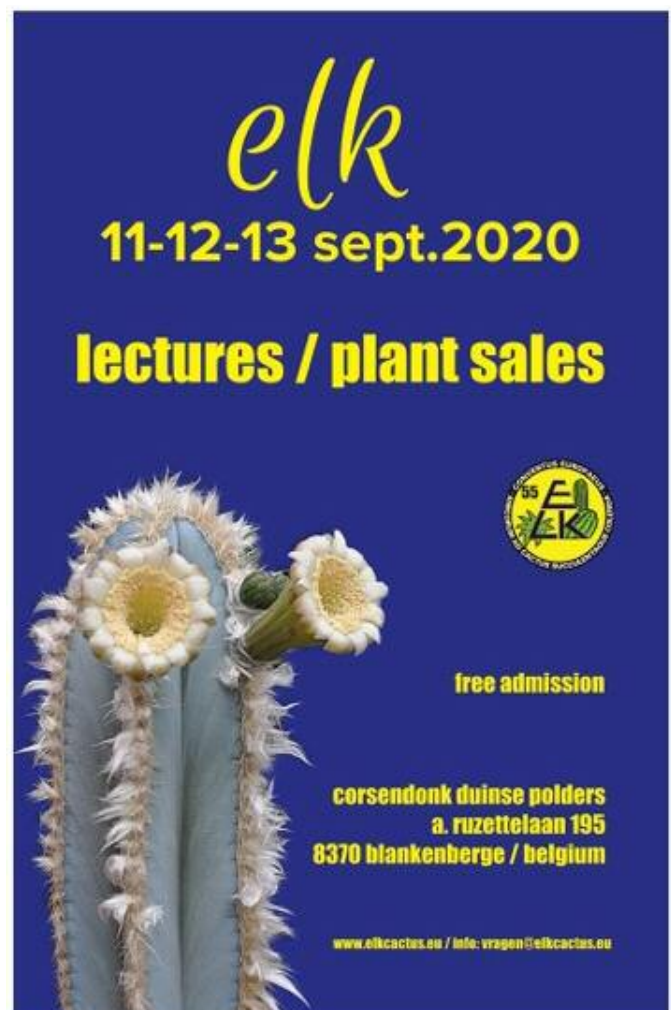
All issues of this journal are now available as free PDF downloads at [The Cactus Explorers website](#)

Can you help?

AG-Echinocereus are interested to hear from anyone who has plants or pictures of *Echinocereus* with Lau collection numbers (like the picture here of *Lau 704 E. dasyacanthus* from Cuchillo Parado, Chihuahua Mexico).



Please contact redaktion@ag-echinocereus.de if you can help with their research.



elk
11-12-13 sept.2020
lectures / plant sales

free admission

corsendonk duinse polders
a. ruzettelaan 195
8370 blankenberge / belgium

www.elkcactus.eu / info: vragen@elkcactus.eu

Publications of David Hunt

Following the generous donation of remaining copies of these publications to the Rowley Library Trust, the following are now available for sale:

Succulent Plant Research titles

Vol.3: Pilosocereus The genus in Brazil

Softbound: £15.00

Vol.4: Christmas Cacti The genus

Schlumbergera and its hybrids

Softbound: £12.00, Hardbound: £15.00

Vol.5: Seed-diversity in the Cactaceae

Softbound: £7.00

Vol.6: Studies in the Opuntioideae

Softbound: £15.00

Vol.7: Mapping the Cacti of Mexico

Softbound: £15.00

Vol.8: Further Studies in the Opuntioideae

Softbound: £25.00

Vol.9: Mapping the Cacti of Mexico. Part II

Mammillaria. Softbound: £25.00

Cactaceae Systematic Initiatives

The Bulletin of the International Cactaceae Systematics Group.

Printed copies of numbers 17 to 40 are available at £5.00 each.

Other Titles

A new review of *Mammillaria* names

Softbound £7.00

A Suco galley. £15.00

Lexicon Illustration volume 2nd edition

(2013) Softbound £30.00

Englera 16. Cactaceae of South America:

The Ritter Collections.

Softbound. £40.00

How to Order

[E-mail](#) Graham Charles for the total price of what you want to order including carriage which will be charged at cost.

If you have not already told me and would like to be advised when each issue of the **Cactus Explorer** is available for download, please send [me](#) your E-mail address to be added to the distribution list.

BCSS Zone 9 Convention

**Zone 9 is holding its
Annual Convention
on Sunday 26th April 2020**
at Shurdington Social Centre,
Shurdington, Cheltenham GL51 4TB
10:00am – 5:00pm

Dr. Tony Roberts

Gasterias in Habitat and Culture

Ray Stephenson

QI of Succulents

Joël Lodé (Spain)

The Plants Adventure in the Desert

There will be the usual range of Plant Sales, Books and Sundries.

Tickets are **£15** which includes Buffet Lunch, Tea/Coffee and Biscuits.

Tickets are available from Zone Branch Secretaries and Zone Representative

Full details on our Zone website:

www.zone9.bcsc.org.uk

Fritz Hochstätter E-books

There is an impressive series of books available to read on-line at:

<https://issuu.com/search?q=fhnavajo>

They include titles about *Sclerocactus*, *Pediocactus*, *Navajoa*, *Toumeyia*, *Agave*, *Beaucarnea*, *Nolina*, *Dasylyrion*, *Ferocactus*, *Echinocereus*, *Manfreda*, *Polianthes*, *Yucca*, *Hesperaloe*, *Coryphantha*, *Furcraea*, *Escobaria*, *Ancistrocactus*, *Echinocactus*, *Echinomastus* and *Glandulicactus*.

BEF Pots are Back

Britain's favourite pots for cacti & succulents are now available again from the BCSS Manchester Branch
Prices from 15p each.

Sizes 2" to 7" diameter square and 3½" to 6" diameter round.
In Terracotta or Black.

Also a selection of larger non BEF bowls.



For prices, other details and ordering go to:
<http://manchester.bcsc.org.uk/home/b-e-f-pots-enquiries>

or contact Peter by email:
peter@bint.myzen.co.uk

Please note orders can only be delivered to addresses in mainland UK at this time.

ZONE 3 RALLY

Saturday 26 October

Carlton WMC, Main Street, Carlton WF3 3RW

Speakers:

Chris Davies: Arizona – a Few Days in the South

Paul Spracklin: Gardening with Succulents

Derek Tribble: Defeating Drought



Plant, pot and book sales

Refreshments at morning and afternoon breaks, raffle and optional carvery

Ticket price: £15 with the carvery, £10 without the carvery

Details available from Zone 3 Representative:

Simon Snowden, 58 Cockshutts Lane, Oughtibridge, Sheffield S35 0FX

Email: simon_snowden@btinternet.com Tel: 0114 286 2120

www.zone3.bcsc.org.uk

The Naturalist's Travel Page

<https://thetravelingnaturalist.org>



Our website has free-to-use online talks for your succulent society's meetings - from many locations around the world. We also have illustrated trip reports and summaries of South African succulent-rich guest farms. Also, a short course on field photography. We are available to help in natural history travel and tour planning.

Ian and Sarda Woolnough

(Formerly Eau Brink Cacti)

Growers of Cacti and Succulents

**Twickers,
Eau Brink Road,
Tilney All Saints,
King's Lynn,
Norfolk
PE34 4SQ**

Tel +44 (0)1553 617132

Visitors welcome by appointment only.

Please email for our Cactus seed list.

ianneilwoolnough@gmail.com



<https://www.sclerocactus-aventures.com>

Site internet en langue française consacré aux cactées du genre

Sclerocactus :

les espèces,
leurs morphologies,
leur culture,
leurs milieux naturels,
l'histoire du genre, ...



'~,-~,-~,-~,-~'Sclerocactus Aventures'~,-~,-~,-~,-~'

Charles Staples (CSSA historian) has informed me that Chuck Hanson passed away on 14 May 2019 due to complications of pneumonia at the age of 86. He was a specialist in propagating many rare succulent plants for the hobbyist when he owned Arid Lands. He later became interested in succulent orchids and went to live in Ecuador where I visited him.



Chuck Hanson at his home in Ecuador
Photograph: Graham Charles

Hanson, Charles [Chuck] Littleton (1933–14 May 2019); US biologist, ecologist, naturalist & nurseryman;
MSc in zoology at Ohio State University, Columbus 1960;
Wetlands ecologist at Ohio Division of Wildlife 1960–63;
Naturalist at US Forest Service, Arizona 1964–66 & at Tucson School District 1 1967–69;
Curator of birds & mammals at Arizona-Sonora Desert Museum 1969–78;
Founder & owner of Arid Lands Greenhouses, Tucson, Arizona 1978–2006;
Opened Arid Lands Iowa 1995–2006 specialising in propagation and release to hobbyists of many rare and unusual succulents, many first introductions in the world;
Explored & collected during 9 trips to Africa and Madagascar;
Interested in succulents & from 2006 in xeric epiphytic, lithophytic & xeric terrestrial orchids;
IOS member 1990; CSSA Fellow 2005;
Moved to Ecuador 2008; back to Nebraska and then Arizona later;
Spouse Karen Rovang (10 Jul 1950–).

So, the hobby has lost another significant person and it is a sad time for those of us that knew him. GC

David Richard Hunt, 25th September 1938 – 20th May 2019



David Hunt (left) with members of the *New Cactus Lexicon* team: Detlev Metzinger, Graham Charles, Nigel Taylor and Martin Lowry. Photograph: Massimo Meregalli

The cactus world is saddened to hear about the passing of David Hunt, one of few British botanists who specialised in the study of the Cactaceae. He worked at Kew Gardens from 1961 to 1994, after which he retired to live in Somerset where he subsequently set up the English Organ School & Museum with his wife Margaret (née Phillips).

David's accomplishments in the field of cacti are impressive:
Secretary of the IOS 1985–94 & 2007 to present.
Editor of *Curtis's Botanical Magazine* 1968–82.
Joint editor of the *Journal of the Cactus & Succulent Society of Great Britain* 1976–82.
President of the Mammillaria Society 1978–84.
Joint founder and editor of *Bradleya* 1983–92.
Appointed BCSS Fellow in 1983 and a Cactus & Succulent Society of America Fellow in 1995.
Awarded Monaco's prestigious Cactus d'Or award in 2006.

As well as writing many books and articles in his accomplished and easy to read style, often about his favourite genus *Mammillaria*, David edited and published his Succulent Plant Research series of books. Periodicals titled *Mammillaria Postscripts* and later *Huitzilopochlia* continued his studies of his favourite genus. His CITES Checklists formed the basis of the treatment used in the *New Cactus Lexicon* (NCL) published in 2006. David pioneered the use of subspecies rather than

variety for infra-specific taxa, thus helping to clean up decades of taxonomic 'clutter'. Leading up to this time, he had published a series of booklets called *Cactaceae Concensus Initiatives*, later *Cactaceae Systematics Initiatives*, which reviewed the approach to be taken with the NCL and subsequently the post publication revisions. The list of his new descriptions and combinations is extensive.

I personally got to know David when he asked me to join the team tasked with putting the NCL together. During a series of meetings with specialists we agreed which species to accept and chose the pictures. I found the experience enjoyable and enlightening, learning a lot about the botanical aspects of our hobby. David was famous as a 'lumper', preferring to accept a wide concept of a species and dismissing many described species as variants of older names.

David Hunt was the most influential botanist in the field of Cactaceae in recent times. As he was so willing to write down what he knew, we have a rich legacy of his work in print for future generations to learn from and enjoy. We will miss his friendship and generosity, his companionship and insight. GC

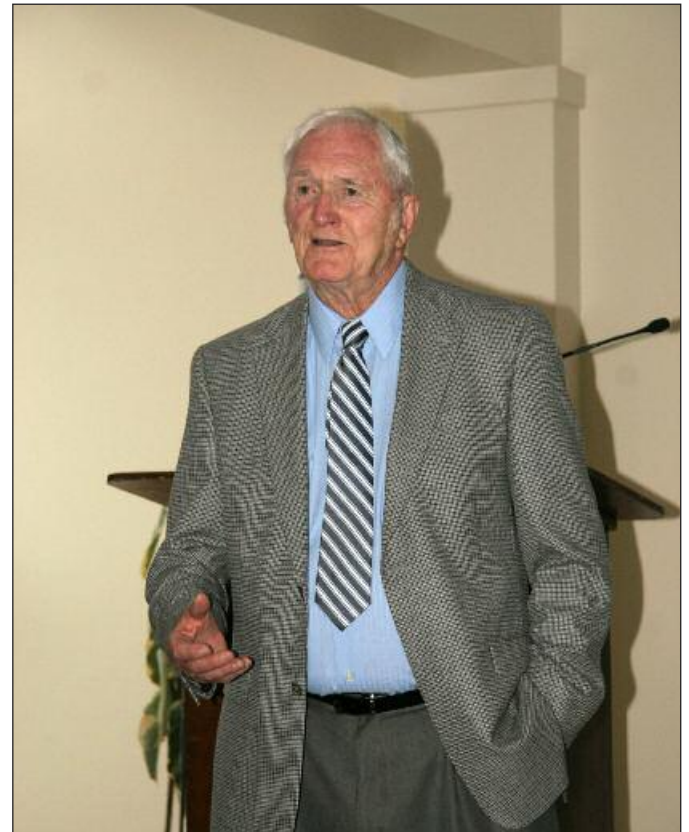
Myron William Kimmach

26 December 1922 – 21 September 2018

American botanist, horticulturist, author, explorer, and director of the Huntington Botanical Gardens, Myron was a specialist in succulents, palms, and epiphytic cacti, and one of the world's leading authorities on echeverias.

Myron was an avid collector of succulents since owning his first succulent at the age of eight. He began to publish and translate articles on succulents in the late 1940s for the Cactus & Succulent Society of America.

He was assistant manager of the UC Botanic Gardens at Berkeley from 1951 to 1962, became a founding member of the International Succulent Institute in 1958, and director of the Huntington Botanical Gardens in 1962, a position he held for 25 years. During his tenure at the Huntington, Myron guided the creation of the Gardens' Herbarium, the Succulent Sympo-



Myron Kimmach speaking at the Jardin Exotique on the occasion of his receipt of the Cactus d'Or award in 2011.

Photograph: Graham Charles

sium, and the Gardens' docent program, as well as initiated the Huntington's plant-hunting expeditions, through which dozens of new species were introduced into cultivation from such countries as Mexico, Venezuela, Costa Rica, Peru, Bolivia, Namibia, South Africa, and other countries.

Myron retired from the Huntington in 1987 but his research and writing in botany and horticulture continued throughout his final years. During his lifetime he published over 100 scientific papers, many describing new species or revising existing genera. In 2010, he was presented with the prestigious Cactus d'Or award for his contributions to the field of cactus study. In 2011, he was awarded the CSSA Myron Kimmach Award for Lifetime Achievement, and in 2017, a new genus, *Kimnachia*, was named in his honour.

It was always a pleasure to meet Myron, a popular and friendly, gentle man. He made an immense contribution to the hobby and it is a fitting tribute that the CSSA created the award in his name that will be presented to others for their lifetime achievements. GC

IN THE GLASSHOUSE

Kamiel Neirinck reports on flowering his cultivated *Arrojadoa marylanae* Soares Filho & Marlon Machado.

Photographs by the author except where noted

Translation by Ronald Fonteyne



Figure 1. Marylan Coelho with Marlon Machado.
Photograph by Alain Buffel.



Figure 3. Open flowers of *Arrojadoa marylanae* in cultivation.



Figure 2. Developing buds of *Arrojadoa marylanae* in cultivation.



Figure 4. Open flowers of *Arrojadoa marylanae* in cultivation.



Figure 5. From left to right: Prof. Alvaldo do Oliveira Soares Fiho, Marylan Coelho and Marlon Machado posing with *Arrojadoa marylanae* in the garden of the University of Vitorio da Conquista. Photograph: Alain Buffel

Arrojadoa marylanae was discovered in September 2001 during an expedition near to the village of Tanhaçu, department Sussuarana in the Serra Escura, south-west of Bahia, Brazil. The purpose of the expedition was to explore the flora of this mountainous region. This species of *Arrojadoa* grows there on bare rock

formations, in crevices along rock faces or in shallow cavities filled with quartz gravel, quartz sand and humus, at an altitude of 550 to 750 meters. This slim columnar plant is named after the biology student Marylan Coelho, an resident of Sussuarana who wanted to study the flora of the Serra Escura thoroughly. She was part of the expedition and discovered the new *Arrojadoa* together with Prof. Avado de Oliveira Soares Filho. The habitat was revisited again several times in 2003 when flowering plants were found, and fruits could be collected.

This slender cereoid cactus is to date the largest *Arrojadoa* ever found. It is a perfectly straight column with golden-yellow spines which forms, after about seven years and at a height of 30 to 60cm, every year a ring cephalium. Through that cephalium grows a new segment of 4 to 10cm high. Like all other species of *Arrojadoa*, *A. marylanae* flowers from the cephalium. All cephalia on a plant continue to produce flowers, which is not always the case with other species of the genus.



Figure 6. *Arrojadoa marylanae* growing on the quartz ridge of the Serra Escura, the only habitat of this unique plant. Photograph: Graham Charles.



Figure 7. Marylan Coelho with *Arrojadoa marylanae* growing on the quartz ridge of the Serra Escura.

Photograph: Graham Charles.

It was not long before seeds were available, and the first cultivated plants were offered for sale. The author saw this golden-yellow newcomer for the first time at the ELK in 2006, presented as grafted seedlings by the late Julienne Jacobs. In September 2007, René Zahra from Malta sent me three seedlings. They were grown from seeds coming from plants with Graham Charles's field number GC685.01. In 2018 one of these *Arrojadoa* formed a ring cephalium for the first time, but it didn't flower. In 2019, after growing through the first cephalium, one of the plants reached a height of 65cm with a diameter of 6cm. A few weeks later – at the end of July 2019 – three little pink-coloured flowers appeared. In the time span of one week, the plant produced about 20 flowers in total. It is unknown to me if any other plants in cultivation have flowered in Europe. Also René Zahra has no knowledge of flowers on cultivated plants. Maybe this flowering can be explained by the warm summer months on the European continent in 2018 and 2019. For lovers of Brazilian cacti *Arrojadoa marylanae* is a “must-have”.

In habitat *Arrojadoa marylanae* reaches a height of 3 meters and in principle does not develop sprouts or branches. The stem has a diameter of 8 to 10cm with 24 to 36 ribs. The areoles bear 10 to 20 fine spines, which are 3cm long. Especially in the new growth the spines have a bright golden-yellow colour. At the base of the plant the spines can be as long as 6cm whereby the plant has the appearance of a *Micranthocereus*. The pink to magenta coloured flowers come from the ring cephalium composed of reddish-brown to golden-yellow bristles and wool. The tubular flowers have a length of 25 to 35mm and about 10mm wide and resemble those of *Melocactus*. The pink berries contain about 200 seeds each. Seeds are offered for sale by cactus seed dealers. It is recommended to graft seedlings. Ambient temperature should not be below 10°C.

According to Taylor & Zappi and Hunt, *Arrojadoa marylanae* could be an intergenetic hybrid, possibly *Arrojadoa* x *Coleocephalocereus*. In 2007, Guigi proposed to erect a new genus with the name *Arrojadoopsis*.



Figure 8. *Arrojadoa marylanae* GC 685.01 in flower in habitat on July 10th 2004. Photograph; Graham Charles

At present the habitat of *Arrojadoa marylanae* is threatened with destruction because of the exploitation of high-quality quartz crystal. The plants that have been dug up during these works will be replanted in a “safe” place. *Arrojadoa marylanae* is registered on the IUNC List of Critically Endangered Species.

References

- AVALDO DE OLIVEIRA SOARES FILHO & MACHADO, M. (2003). A new *Arrojadoa* species from the state of Bahia, Brazil. *British Cactus & Succulent Journal* **21(3)**: 114–122
- DELANOY, G. (2009) *Arrojadoopsis marylanae* in its habitat. *Cactus & Co*, **XIII(1)**: 59–73
- CHARLES, G. Threat to the only known habitat of *Arrojadoa marylanae*. *The Cactus Explorer* **10**: 9
- MACHADO, M. (2005) The discovery of *Arrojadoa marylanae*. *Cactus and Succulent Journal (US)* **77(2)**: 62–67

Linda Doll from Garden City, Kansas, USA has sent me pictures which she took on a trip to Ecuador when she was near Cotacachi, north of Quito. They show the form of *Borzicactus sepium* that is sometimes called var. *ventimigliae*. Thank you Linda!

Reference: Jens Madsen (1989). *Flora of Ecuador*. 45. *Cactaceae*: 19–22.



Borzicactus sepium

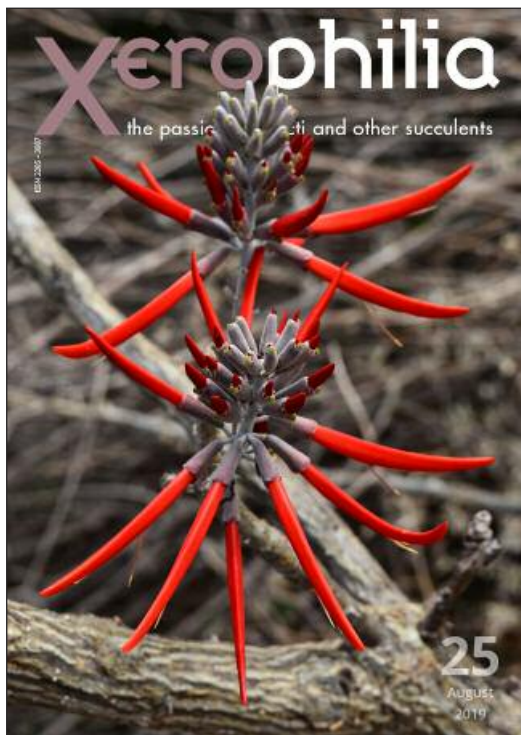
near Cotacachi, north of Quito, Ecuador.

Photographs: Linda Doll

ON-LINE JOURNALS

On-line Journals for you to download free

Publishing journals on the web is now very popular. Creating them is a lot of work so perhaps that is why some have ceased publication. Here are some links for you to download and enjoy.



Xerophilia

Issue 25 of *Xerophilia* appeared in August 2019. It is published in English as well as the language of the original article. The quality contents are impressive and varied. There is lots to read in its 106 pages.

Contents include: · Editorial 25; Xerophilia 25's Favorite Quote: Herman Edward Daly; In the search of *Horridocactus aspillagae*; *Coryphantha potosiana* (Jacobi) Glass & Foster a critically endangered species; The genus *Leptocereus*, part 2: *Leptocereus wrightii*, resurrected from extinction; Tucson Area Opuntias; Holguín Dwarf Cactus: *Escobaria cubensis* (Britton and Rose) Hunt; Field notes on *Echinocactus polycephalus* in the Anza Borrego Desert State Park; ×*Carpophyma mutabilis* Heenan & Sykes at Ahuriri Estuary, Napier, New Zealand; *Mammillaria senilis* Lodd. ex Salm-Dyck, a pictorial in early March; Online journals.

The magazine may be downloaded free as a pdf from

<http://xerophilia.ro> Contact: xerophilia@xerophilia.ro

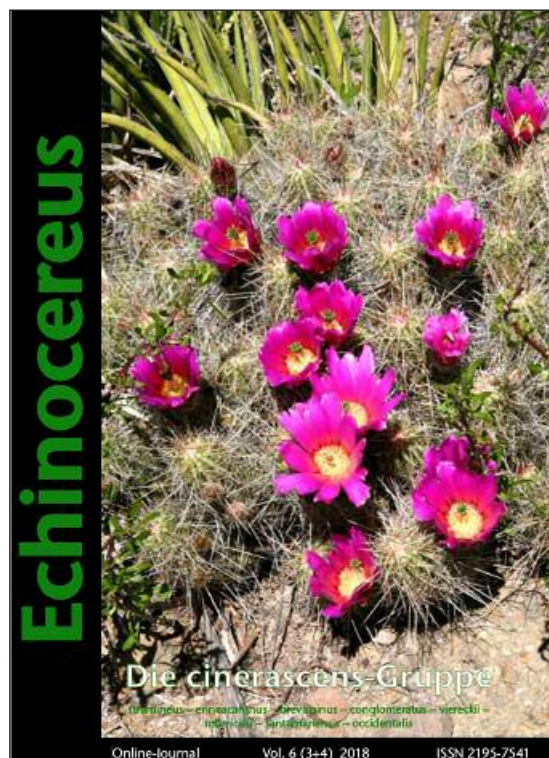
ECHINOCEREUS Online-Journal

The German language on-line journal for Echinocereus lovers. The goals of this journal are to study the genus *Echinocereus*, to publish articles about the continuous research on these plants (classification, morphology, evolution) as well as to protect the genus *Echinocereus* by reproduction from seeds and distribution of the seedlings.

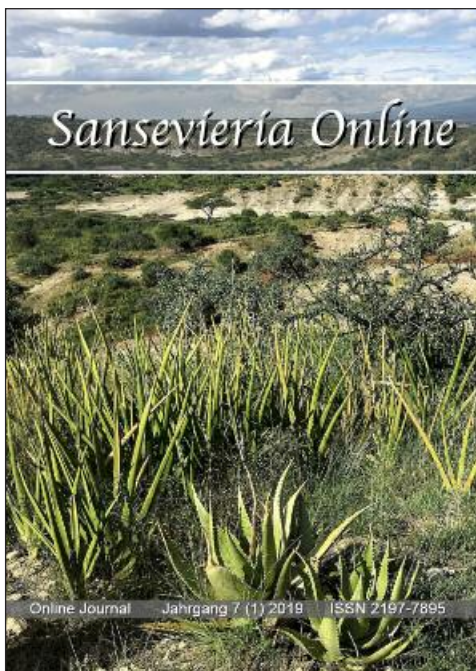
This issue, published in October 2018, concerns the Echinocereus cinerascens group: *E. stramineus*; *E. annaeacanthus*; *E. conglomeratus*; *E. viereckii* and *E. occidentalis*.

The downloaded pdf file allows printing, but does not permit copying of the content. For those of us who do not understand German very well, the publishers also provide a downloadable MS Word document of the text making it possible to copy and paste it into a translation program. This is a major benefit of online journals and I thank them for this useful feature.

See website: www.echinocereus.eu



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: Return to Tanzania in spring 2018; On the newer taxonomy of *Sansevieria*; *Sansevieria*: Collection and heritage in BG Meise; *Dracaena sambiranensis* - a new name for an almost forgotten species; From historical new descriptions; Cherished *Sansevieria* presented

There is a cumulative index published for 2013–18.

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

Schütziana

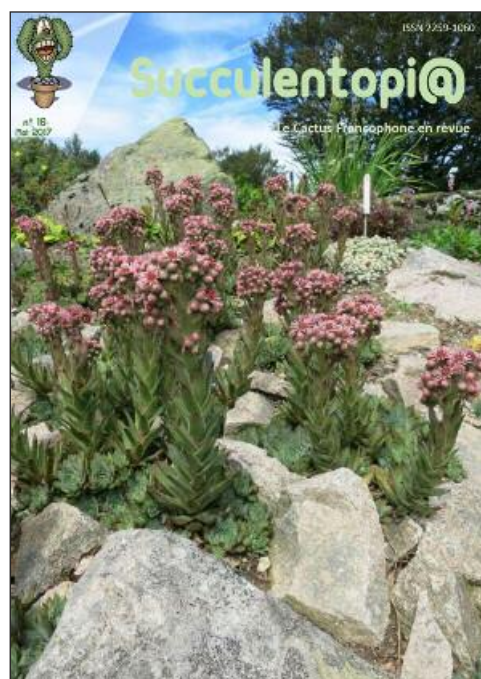
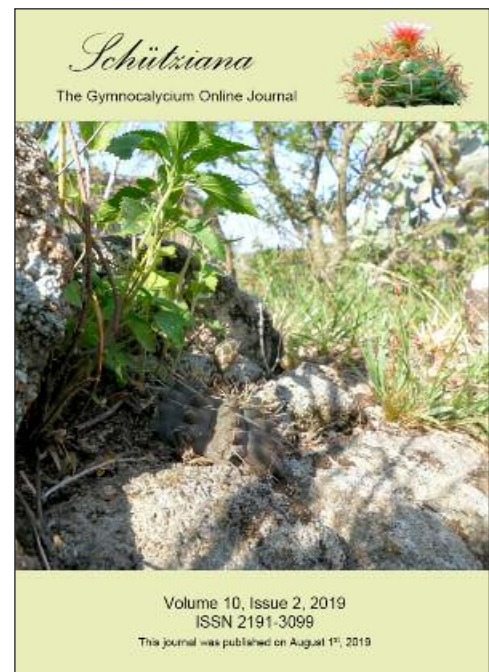
The latest issue of *Schütziana*, the specialist on-line journal for *Gymnocalycium* enthusiasts, 10(2) was published in August 2019 and features 2 articles:

1. *Gymnocalycium morroense* and comparison with related species
2. New localities concerning the distribution of *Gymnocalycium kuehhasii* Neuhuber et Sperling

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



Succulentopi@

More than a year has passed since the last *Succulentopi@* was published, No.16 appeared in May 2017.

This was the first online journal published in French. The quality is excellent as you would expect from Yann Cochard and his enthusiastic team.

It is available as a free PDF download from:

<http://www.cactuspro.com/succulentopia>

This issue includes experience with *Toumeyia papyracantha*; The genus *Acanthocalycium*; Photo Gallery; 4 pachypodiums from Madagascar; Substrates and their composition; Philately and the CactusPro Library.

I hope we see more issues soon!

Sukkulenten (formerly Avonia News)

Free German language on-line newsletter of "Avonia", the quarterly journal of the German Society for other Succulents.

From 2015, the monthly on-line newsletter has been called "Sukkulenten"

This issue, No. 3 of 2018, discusses The genus *Huernia* and other succulents in Angola, part 4; *Crassula muscosa* – The Wolf claw *Crassula* and *Sempervivum ciliosum*.

It is very well produced with excellent pictures.

See website: www.fgas-sukkulenten.de

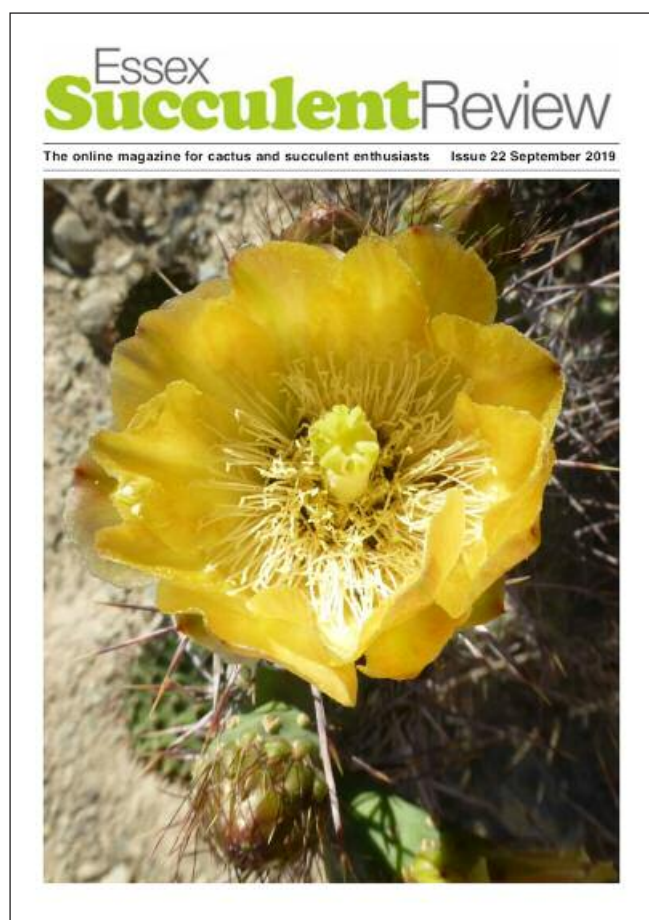
Annual seed list for members and much more.

Special interest groups for *Aloe* (incl. *Haworthia* etc.), *Ascleps*, *Euphorbia*, *Mesemb*s and *Yucca*/winter-hardy Succulents.

For membership and further information contact:

Dr. Jörg Ettelt: Morgenstr. 72, D-59423 Unna, praesident@fgas.sukkulenten.de or

Wilfried Burwitz: Postfach 100206, D-03002 Cottbus, geschaeftsstelle@fgas.sukkulenten.de



Essex Succulent Review

Written by growers for other growers

The Essex Succulent Review is a high quality quarterly on-line UK newsletter featuring non-technical articles on all aspects of cacti and succulents.

Issue 22, published September 2019, features 46 pages of: Fabulous flowers; Succulent plant hunting in Britain; The larger *Eriosyce*; Grass aloes; Introducing epiphytic cacti Pt 2 *Epiphyllum*; *Rhodiola*; Desert island plants; What is John Innes compost? Francis Masson; Two interesting *euphorbias*; Around Argentina by bus.

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

Further details and back issues are available on the website:

<http://www.essexsucculentreview.org.uk>
or email: sheila@essexsucculentreview.org.uk

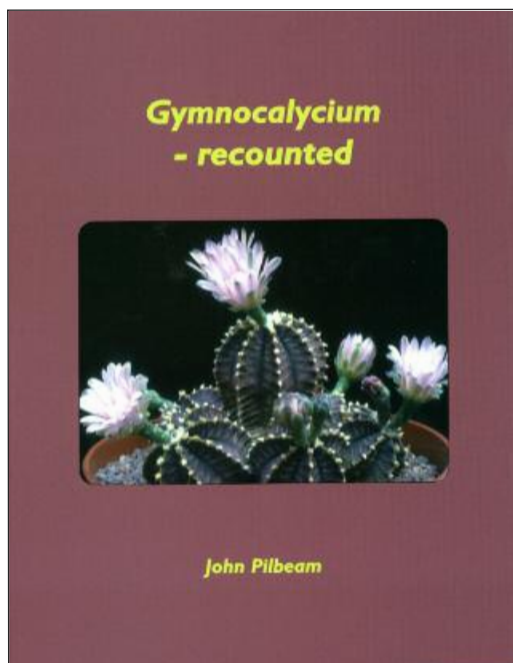
You don't have to live in Essex to read it!

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.

Gymnocalycium - recounted

John Pilbeam



The genus *Gymnocalycium* remains just as popular as ever so John has produced his second book about the subject. His first, *A Collector's Guide* published back in 1995, is still in demand and is now quite expensive to buy as a second hand book.

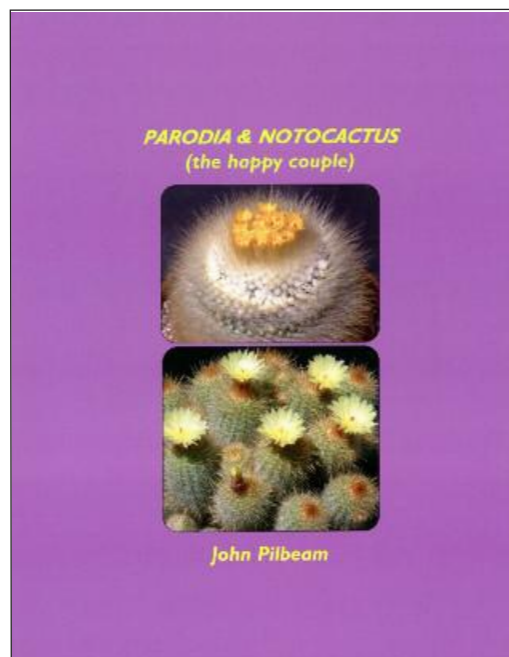
This latest version is largely a picture book, along the lines of others recently published by John. The species are arranged in alphabetical order and illustrated with large colour pictures of plants in cultivation and in habitat. The attractions of each species are obvious and will help you decide what you might like to add to your collection.

Brief notes with each species list synonyms, define the distribution and outline the plant's taxonomic standing.

100 pages, 275 x 215mm hardback with dust jacket. 108 colour pictures. You can buy it directly from [John Pilbeam](#): £40 UK; £45 EU; £50 elsewhere. Prices include postage.

Parodia & Notocactus

John Pilbeam



Here is another large group of South American cacti that has been chosen by John to be the subject of one of his picture books. I have often discussed the current unpopularity of these plants but I hope that, now we have a well-illustrated book in English, they may become fashionable again.

The species are organized alphabetically starting with *Parodia* in the strict sense, followed by those species that were in *Notocactus*. The pictures have been provided by a number of specialists and are reproduced at a good size, clearly illustrating the characteristics of the species. There is considerable diversity amongst parodias, offering the collector many attractive, easy to cultivate plants which this book will help you choose.

100 pages, 275 x 215mm hardback with dust jacket. 142 colour pictures. You can buy it directly from [John Pilbeam](#): £40 UK; £45 EU; £50 elsewhere. Prices include postage.

Cacti of Eastern Brazil

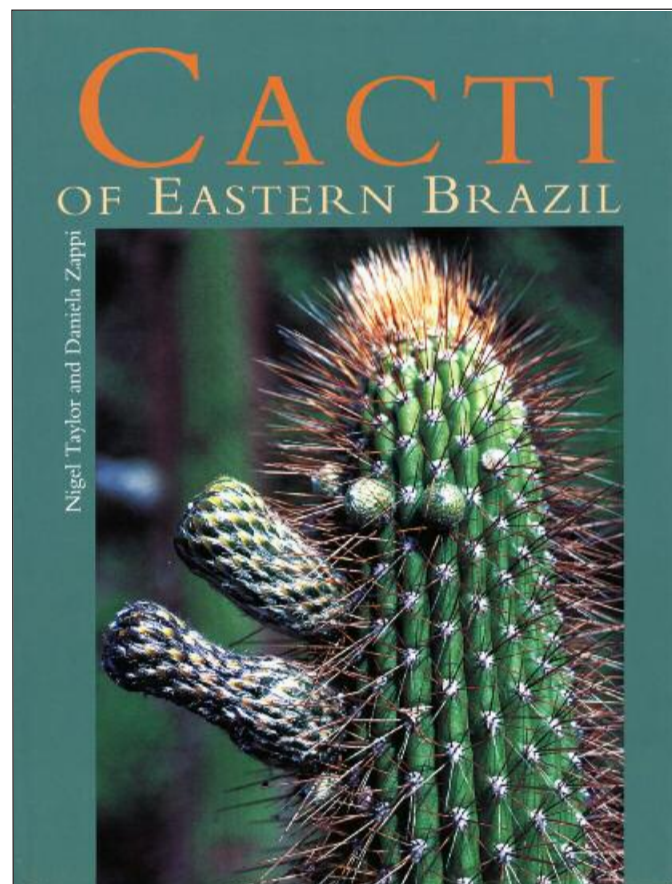
Nigel Taylor and Daniela Zappi

This is the definitive text about the cacti of this region of Brazil. The detailed text describes every aspect of the plants and includes keys to genera and species. There is a series of maps showing the distribution of the plants and 128 high quality colour pictures illustrate the spectacular cacti included in this book.

Published by Kew in 2004, much of the content is based on the work done by Nigel Taylor for his PhD thesis published in 2000. Together with his Brazilian botanist wife Daniela Zappi, Nigel continues to study the cacti of this region and they have published a number of updates on the contents of this book following new research and the descriptions of new taxa.

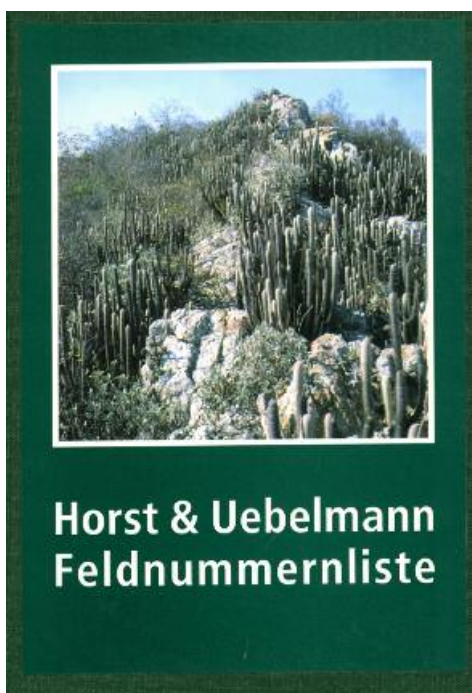
This is a very readable book while being academically excellent. It is packed with information about the discovery of the plants, as well as their identification, botany, ecology, geography and conservation.

511 pages 246 x 197mm hardback, with dust jacket. ISBN 9781842460566 Kew Publishing, 2004. Available as a new book from the [Kew Shop](#) for £75.00. Second hand copies are occasionally offered for sale.



Further Reading

- TAYLOR, N. & ZAPPI, D. (2018). Additions and corrections to 'Cacti of Eastern Brazil'. *Bradleya* **36**: 2–21.
- TAYLOR, N., ZAPPI, D. & ROSA, P.O. (2019). A new *Pilosocereus* (Cactaceae) from Goiás state, Brazil. *Bradleya* **37**: 12–16.



Horst & Uebelmann Fieldnumber List

Anyone with an interest in Brazilian cacti will be familiar with plants with HU numbers. They refer to plants which were found by Werner Uebelmann when he travelled with his Brazilian friend Leopoldo Horst. Their trips together were from 1967 until 1985. Later, Leopoldo's son Ingo Horst continued using HU numbers, including plants from other countries.

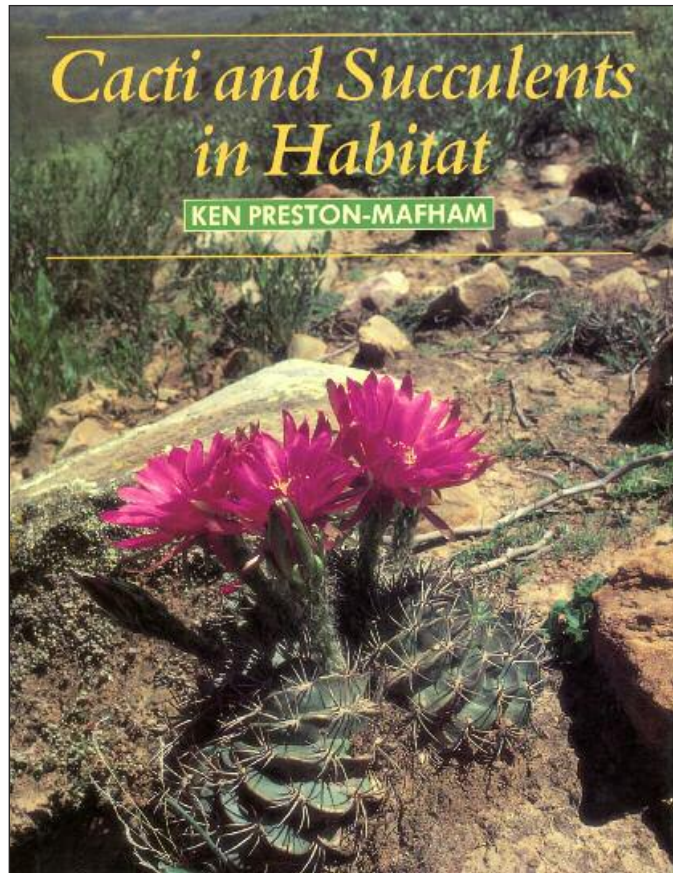
This booklet, published in 1996, lists the HU cactus numbers up to HU1762 with generalized localities. Like FR numbers, the HU numbers are not necessarily from a single location. They were applied to plants that Horst and Uebelmann considered to be the same, even when growing in different places.

204 A5 pages, 44 colour pictures.

Available from the [DKG](#) for 19€.

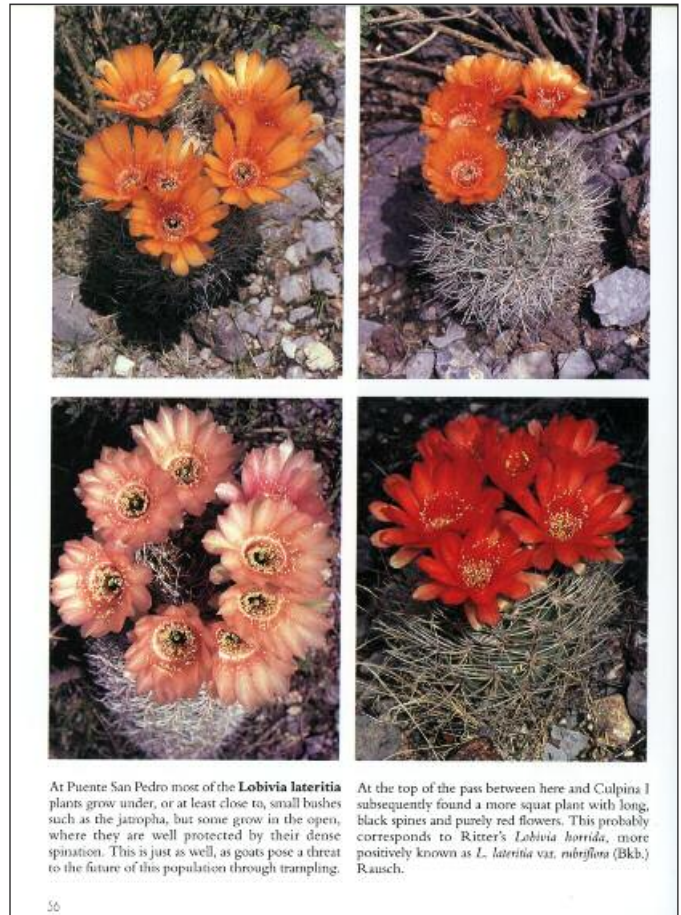
Cacti and Succulents in Habitat

Ken Preston-Mafham



I recently saw my old friend Ken Preston-Mafham at this year's Cactus Explorers Club meeting in Leicester. I was reminded of my first trip to South America back in 1992 when I went to Argentina with Ken and other friends. Seeing cacti in their natural environment changed my feeling towards cultivated plants, an experience which led me to travel to habitats many more times. If you are thinking of going yourself, bear in mind that plants in pots are never the same again! And expect to go again and again, there is always something you didn't find or a hill you didn't climb!

Ken was a professional photographer so his pictures are excellent and well suited to publication. In 1994, he wrote a well-illustrated book about some of the places where he had seen and photographed cacti and succulents. He had hoped that this would be the first of a series about habitats but it proved less popular than hoped and ended up being the only volume published.



The first place covered is Bolivia with many lovely pictures of plants in flower with the characteristic scenery of the area. Then follows the south-west of the United States with even more dramatic scenery and illustrations of choice and spectacular plants. The final location, Southern Africa, is a treat for the succulent lover with iconic species and expansive landscapes under blue skies.

The text is written in an easy style and gives a good impression of what it is like to look for plants in the wild. It is not as easy as it may appear to photograph plants in flower. You have to be there at the flowering time, an event that can occur at different times from year to year due to the weather.

160 pages, 245 x 190mm, hardbound with dust jacket, 170 colour photographs. Published by Cassell. ISBN 0-304-34294-7.

There is also a softbound edition ISBN 0-304-34551-2 which can still be bought new from [Keith's Plant books](http://www.keithsplantbooks.com) for £8.50. Very good value and a great read. GC

SUCCULENTS ON A PLATE

Graham Charles describes one of the most beautifully illustrated works on cacti. *Blühende Kakteen (Iconographia Cactacearum)* was published in parts between 1901 and 1921.



Tafel 117 (1910).
Echinocactus horizontalonius Lem.

Blühende Kakteen

This work was published on behalf of the German Cactus Society (DKG) which was founded and chaired by the senior author, Karl Schumann. It comprises 176 fine chromolithographic plates (4 are double-page), all finished by hand-colouring and based on the original watercolor paintings by Toni Gürke, wife of the author, Dr. Max Gürke. A review of nearly

two hundred flowering cactus species. Many of the species represented are from Central and South America. The superb full page colour plates are among the most vivid and brilliant illustrations of cacti ever published.

The plates were first published in 45 Lieferungen (parts), each with 4 plates and the accompanying text. Lieferung 1–12 have text by Karl Schumann, 13–31 by Max Gürke



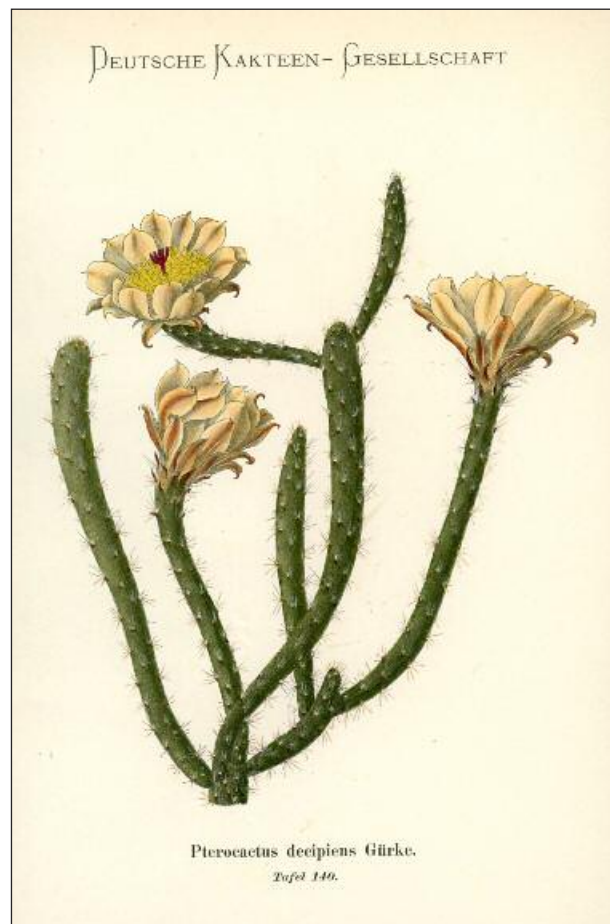
Tafel 41 (1903). *Phyllocactus Thomasianus* K. Sch. Now *Epiphyllum thomasianum* (K. Sch.) Br. & R.

(1854–1910) and 32–45 by Friedrich Vaupel (1876–1927). These are normally seen bound in 3 volumes, the original binding being a pale green cloth with gold lettering.

To find out about publications concerning the taxonomy of plants, such as this one, a good place to look is the amazing reference book *Taxonomic Literature* by Stafleu and Cowen. *Blühende Kakteen* is detailed in volume 5 of their work where you can see the publication dates of each of the parts.

After the information about the contents of each of the 3 volumes, the authors refer to a different issue which they called the 'Band-Ausgabe'. This is a set of volumes, each with about a dozen plates. They state that they have only seen 11 volumes, up to plate 156 but that there may be more that they have not seen.

My copy of this work, which I think originally belonged to Paul Hutchison, comprises a set of these volumes. The last one is titled 'Zwölfter Band', so it is a twelfth volume (see image opposite).



Tafel 140 (1912). *Pterocactus decipiens* Gürke. Now a synonym of *Pterocactus tuberosus* (Pf.) Br. & R.

This twelfth volume contains plates 157–168, published in 1914 and 1916 as shown on the cover. The last plates, 169 to 180 and text from October 1921 are loosely inserted in the back of my volume together with an index to the whole work and a note from Vaupel dated August 1921.



The Cactus and Succulent Journal (CSSA) published B&W reduced images of the plates and translated text starting in Vol. XVIII(8) 1946 and ending with plate 32 in Vol. XXV(1) 1953.

A reprint edition of 96 plates in 8 fascicles was published by the Deutschen Kakteen-Gesellschaft between 1982 and 1991. GC

OPUNTIA RUGOSA, A SELDOM-ENCOUNTERED CALIFORNIAN SPECIES

Dave Ferguson, davef@opuntiads.com;
Nancy Hussey, nancy@opuntiads.com;
Joe Shaw, jshaw@opuntiads.com

Opuntia is an interesting genus in the United States. First, the plants are “plastic.” A single species can develop different looks under different conditions. Sometimes plants from a single taxon are taller, or shorter, or have darker spines, etc. even though they might grow just a few miles apart. Additionally, plants may assume different shapes and sizes due to ecological factors such as drought, herbivory, or even wind. The stems of *Opuntias* are cladodes which can seem similar from plant to plant. However, each species does maintain its unique identity. Though species may grow side-by-side and sometimes seem like collections of similar-appearing pads, they are distinguishable.

This plasticity and seeming similarity has led to conflicting ideas about how to explain the variety in the plants and how to classify them. Inability to clearly differentiate between taxa has resulted in a number of unique species being ignored, even after being recognized and named, to the point where they are lost from consideration by population biologists and passed over for any sort of legal protection when their populations are threatened or endangered.



Figure 1. *Opuntia rugosa*, cladode with raised areoles, in habitat.

Here is one such species that occurs on the oceanic side of southern California where natural environments and endemic populations of plants and animals are often dramatically endangered by development and various uses of the limited amount of land available. This species is perhaps in serious danger of extinction, but as a result of not having been acknowledged nor studied as a population, it has received no notice of being in this precarious position.

Opuntia rugosa was [described in 1914 by David Griffiths](#) and the [holotype was deposited](#) a year earlier. His description was derived from a plant originally found near Pomona, California. The plants were considered by him to be distinct from other Californian species of *Opuntia* growing sympatrically alongside it. One notable distinguishing characteristic pointed out by Griffiths is that new areoles are raised above the surface of the pads, giving them a rugose look (Figure 1).

Griffiths described *O. rugosa* as a “low, ascending, radiating, yellow-green species,” to 30-60cm tall (Figure 2). The main branches rest on edge and spread to 1.5m or more, or they



Figure 2. *Opuntia rugosa*, mature plant, in habitat.



Figure 3. *Opuntia rugosa*, cladode with flower buds, in habitat.



Figure 4 *Opuntia rugosa*, cladode with flower buds, in habitat.

may be slightly elevated. Overall, mature *O. rugosa* plants have roughly the same shape and height as *O. camanchica*. Pads are obovate and broadly rounded above, approximately 11cm by 14cm or sometimes larger. Areoles are uncrowded over the face of the pads. The spines are white to pale yellowish and sometimes slightly darker gold to brownish at the base, diverging in all directions (Figure 3). In age, the spines are grey. There may be 2–3 spines on new growth but 4–6 on older pads or only 1–2. Centrals are erect and divergent.

The flower buds have dull reddish highlights (Figure 4), and the areoles are crowded distally and have gold bristles (Figure 3). Flowers are canary yellow with pale stamens, yellow anthers, a pale style, and a green stigma (Figure 5, Figure 6). The fruit is dark red-purple when ripe.

O. rugosa is generally missing from the literature and does not seem to be reported among the various lists of Californian plants (e.g., Munz and Keck, 1973), and its existence may be unknown to many Californian botanists because they may consider it to be the same as other Californian species or even a hybrid due to L. Benson's treatment (1983). Benson incorrectly treated many California opuntias as hybrids and unfortunately lumped discrete species together. He proposed that many populations of cacti were actually hybrids with *O. ficus-indica* as one parent, but that does not fit with observable evidence and seems an untenable explanation for *O. rugosa*, which shares little in common with *O. ficus-indica*.

We observed this *O. rugosa* in limited numbers at the Puddingstone Reservoir near Pomona, California in May, 2011. One of the authors (Ferguson) has observed the species in this area since 1979 and has visited the population a number of times. Ferguson also observed that the species could be found in the area generally bounded by San Dimas, Pomona, West Covina, and Walnut. It has not been located anywhere else; however, it might be expected in hills further to the south and should be looked for there.

The population on the hills to the west side of Puddingstone Reservoir has declined due to habitat destruction from several hundred plants in 1979 to only two plants in 2011. The site has not been visited since. Surrounding areas, mostly similarly developed, have not been thoroughly examined for the species in recent years, so its overall numbers are not known. Population studies and status reports are probably supportable because we have not observed the species in other areas except those mentioned. It is possible the species is essentially extinct because the immediate area has been heavily developed.



Figure 5. *Opuntia rugosa*, flower, cultivated plant.



Figure 6. *Opuntia rugosa*, flower, cultivated plant.

References

- BENSON, L. (1983). *Cacti of the United States and Canada*, Stanford University Press.
- GRIFFITHS, D. (1914). [Proceedings of the Biological Society of Washington 27\(6\): 27.](#)
- MUNZ, P. & KECK, D. (1973). *A California Flora and Supplement*, University of California Press.
- Dave Ferguson, davef@opuntiads.com;
Nancy Hussey, nancy@opuntiads.com;
Joe Shaw, jshaw@opuntiads.com

THE GENUS STENOCACTUS

John Pilbeam tells us about the genus *Stenocactus*, a Mexican genus that remains poorly understood but this article may help you identify the plants in your collection. There is still debate whether *Echinofossulocactus* is the correct name for this genus. See 'Further Reading'.

It was suggested recently that I should contemplate producing a book on *Stenocactus*. To which my response was that I had already done so as part of my book with Bill Weightman 13 years ago as part of that on the smaller genera of cacti in Mexico, entitled *Ariocarpus et cetera*.

With only eight recognized species in this and *The New Cactus Lexicon* (in the latter *S. sulphureus* was only provisionally recognized) it seemed that it would be a slim volume if undertaken separately. So my thoughts turned to an article for the Cactus Explorer, for the benefit of those without either of the aforementioned books in their possession, and as a reminder to those readers who had either of them, but needed a reminder of the charms of this small but beautiful cactus genus, so undemanding of that precious commodity in collections of cacti and succulents, space to grow them. With only one that threatened to become a clustering plant in time, *S. vaupelianus*, which will make a clump of stems to fill a 30cm pan. Most others are satisfied with a 15cm pot in which to accommodate their single stems.

There have been over thirty species names validly published, of which Nigel Taylor (1979) suggested that 11 were considered of no value, a further 5 of uncertain status, and the rest could be reduced to 6, with the remainder reduced to "probable" synonymy beneath them as follows:

1. *S. coptonogonus*
2. *S. crispatus* (synonyms- some with reservations - *S. acroacanthus* ?, *S. anfractuosus* ?, *S. arrigens*, *S. bustamantei*, *S. cadaroyi* ?, *S. caespitosus* ?, *S. confusus*, *S. dichroacanthus* ?, *S. flexispinus* ?, *S. guerraiianus*, *S. hastatus*, *S. heteracanthus* ?, *S. kellerianus*, *S. lamellosus*, *S. lancifer*, *S. lexarzai*, *S. multiareolatus*, *S. obvallatus*, *S. ochotereanus* ??, *S. violaciflorus*)
3. *S. multicostatus* (syn. *S. erectocentrus*, *S. lloydii*,

S. zacatecasensis)

4. *S. phyllacanthus*

5. *S. sulphureus*

6. *S. vaupelianus* (syn. *S. albatu*s).

Some work was done by Backeberg in his monumental, all-embracing 6-volume work *Die Cactaceae* in the middle of the last century, with excellent spine cluster drawings reproduced in that work and in his later *Cactus Lexicon*.

A key and the distribution of the species were produced in 1979 and 1980 in the Mexican Society's journal *Cactaceas y Suculentas Mexicanos*

Section 1 Platygoniae

1 species: *S. coptonogonus*

Section 2 Stenogoniae

Series 1 Oligacanthi - radial spines up to 10,

species: *S. anfractuosus*, *S. arrigens*, *S. bustamantei*, *S. caespitosus*, *S. confusus*, *S. crispatus*, *S. dichroacanthus*, *S. erectocentrus*, *S. flexispinus*, *S. lamellosus*, *S. lancifer*, *S. latipetalus*, *S. lexarzai*, *S. multiareolatus*, *S. multicostatus*, *S. obvallatus*, *S. pentacanthus*, *S. phyllacanthus*, *S. recurvoispinus*, *S. reichianus*, *S. tricuspidatus*, *S. violaciflorus*, *S. xyphacanthus*.

Series 2 Polyacanthi - radial spines 10 or more

species: *S. albatu*s, *S. boedekerianus*, *S. heteracanthus*, *S. lloydii*, *S. mocinianus*, *S. ochotereanus*, *S. tetraxyphus*, *S. vaupelianus*, *S. wippermannii*, *S. zacatecasensis*

Cactaceas y Suculentas Mexicanos **25(3)**:60 (1980) - distribution & **24(4)**:90 (1979) - key.

In my book *Ariocarpus et cetera* pp.82-89 (2006) I recognized eight species, following Nigel Taylor's definition of this genus; I followed a more definite recognition of *S. sulphureus*, as asserted personally to me in enjoyable and educational travels with Charlie Glass in the 1990s. And happily it has recently been rediscovered and seed has been offered,

with many eagerly watched seedlings being observed in cultivation.

The following are the salient details of the many names ascribed, and still I suspect on accompanying labels of many plants in collections. The eight accepted species are in bold, the discarded ones in italics. If plants with the old discarded names persist in your collection, and they certainly did in mine for a long time, the following list and the table at the end showing their details as originally described and locality where known may (repeat *may*) help decide where they may (repeat *may*) belong. If the details don't match, then you are stuck with more detailed guesswork as to where they might fit by comparison with the salient details or locality if known, and thence to where they might be referred among the accepted eight. If it just works for a few of the orphans out in the cold it may (repeat *may*) be worthwhile.

S. acroacanthus (Stieber) Marshall & Bock, *Cact.* 146, fig. 99 (1941); Stieber, *Bot. Zeit.* 5: 491 (1847) - as *Echinocactus*
Of undeterminable origin, this name is discarded as of no value. The plant pictured by Marshall & Bock is referred by Taylor to *S. crispatus*.

S. albatius (Dietrich) Backeberg & Knuth, *Kaktus-ABC* 354 (1936); Dietrich, *Allg. Gartenz.* 14: 170 (1846) - as *Echinocactus*
Based on plants collected by Ehrenberg in Mexico, the locality unknown, this taxon is considered to be a yellow-spined variation of *S. vaupelianus*.

S. anfractuosus (Martius) Berger, *Kakteen* 248 (1929); Martius ex Pfeiffer, *Enum. Cact.* 63 (1837) - as *Echinocactus*
Based on a plant in the Munich Botanic Garden, possibly sent there from Mexico by Karwinsky, with no type locality cited, flowers and fruit not described, and no contemporary illustration, this name is considered by Taylor to be of no value. Plants illustrated under this name by Bravo (1969) and Meyran (1973) are referred by Taylor to *S. crispatus*.

(var.) *orthogonus* Monville ex Labouret,

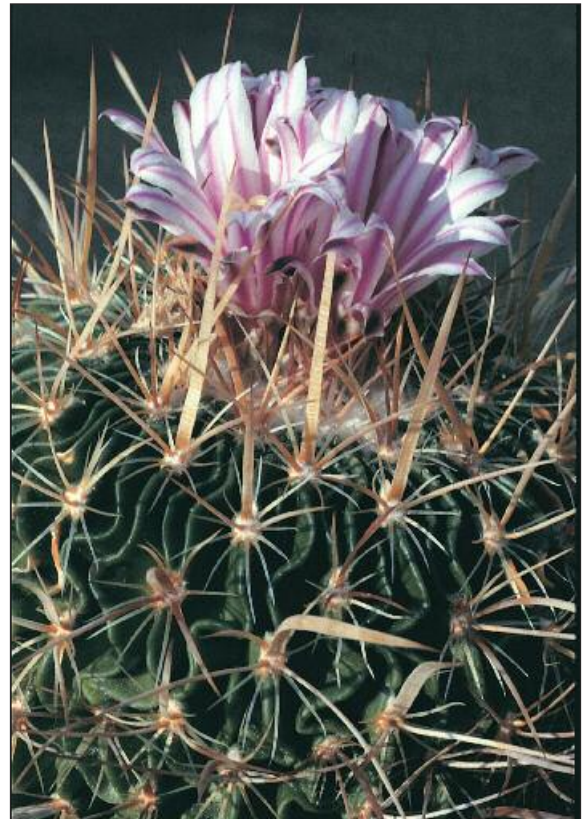


Figure 1. *Stenocactus multicostatus* Lau751 from Nuevo León, Mexico. Photograph: Bill Weightman



Figure 2. *Stenocactus coptonogonus* in habitat in San Luis Potosí, Mexico. Photograph: John Pilbeam



Figure 3. *Stenocactus coptonogonus* SB1428 from Zacatecas, Mexico. Photograph: Graham Charles



Figure 4. *Stenocactus crispatus* in habitat near Tonalá, Oaxaca, Mexico. Photograph: John Pilbeam



Figure 5. *Stenocactus multicostatus* ex Lau in cultivation. Photograph: John Pilbeam



Figure 6. *Stenocactus multicostatus* Lau1341 from Nuncio, Coahuila, Mexico. Photograph: Graham Charles

Monogr. Cact. 220 (1853)

Referred to synonymy with the type

(var.) *pentacanthus* Salm-Dyck, *Cact. Hort. Dyck.* 1849: 31 (1850) - as *Echinocactus*

Referred to *S. pentacanthus*.

(var.) *spinosior* Lemaire, *Cact. Gen. Nov. Sp.* 89 (1839)

Referred to synonymy with the type.

S. arrigens (Link) Berger, *Kakteen* 248 (1929); Link en Dietrich, *Allg. Gartenz.* 8: 161 (1840) - as *Echinocactus*

Based on plants cultivated at Berlin, with no stated origin, but possibly collected by Ehrenberg at Zimapan, Hidalgo, this taxon is referred by Taylor to probable synonymy with *S. crispatus*. Noted for its very short flower.

(*S.*) *Echinocactus biceras* Jacobi, *Allg. Gartenz.* 16: 370 (1848) - synonymous with *S. pentacanthus*.

S. boedekerianus Berger, *Kakteen* 246 (1929)

Described from plants collected near Concepción, Zacatecas, the distinctive spination (about 20 radial spines, with 6 to 9 central spines) suggests a relationship with *S. vaupelianus*. But since the flowers were not described, no type was apparently preserved, and no illustration was published, it is difficult to determine what was being described. Helia Bravo offers a photograph of a plant in the wild, which supports the affinity with *S. vaupelianus*.

S. bravoiae Tiegel in Borg *Cacti* 227 (1937) nom. nud.; Bravo *Cact. Suc. Mex.* 14(4): 85 (1969)

S. bustamantei Bravo, *Cact. Mex.* 404 (1937); *Cact. Suc. Mex.* 14(2): 40 (1969) - indeterminate

S. cadaroyi (Hort) Backeberg, *Die Cact.* 5: 2775, fig. 2618 (1961); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 335 (1991) - as synonymous with *S. dichroacanthus*.

S. caespitosus (Backeberg), *Cact. Succ. J. (GB)* 12: 81 (1950) - as *Echinofossulocactus*.

var. *gracilispinus* Bravo, *Cact. Suc. Mex.* 14(2): 34 (1969)

S. confusus (Britton & Rose) Knuth in Backeberg & Knuth, *Kaktus ABC* 354 (1936); Britton & Rose, *Cact.* 3: 120 (1922) - as *Echinofossulocactus*; Guerke & Vaupel, *Bliühende Kakteen* 3: t.159 (1914); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 340 (1991) - as having affinity to *S. lamellosus*; N.P. Taylor, *Cact. Succ. J. GB* 41(2): 38 (1979) - as probably conspecific with *S. crispatus*.

This is a very unsatisfactory name erected

Tom. 17.

Pl. 8.



ECHINOCACTUS crispatus.

Echinocactus crispatus, Plate 8 from De Candolle *Revue de la Famille des Cactées* (1828).

and described entirely on the basis of a plate in Guerke and Vaupel's *Blühende Kakteen* published a few years previous to its description, captioned *Echinocactus gladiatus*, but differing from Schumann's description of that species, and so taken up and described under this new name by Britton and Rose. There is no location cited for the plant pictured, and the almost apologetic sentence that "living plants, doubtless from Mexico, were in the Botanical garden at Berlin" hardly justifies their action. The choice of epithet was prophetic rather than retrospective.

S. coptonogonus (Lemaire) Backeberg & Knuth, *Kaktus-ABC* 353 (1936); Lemaire, *Cact. Aliq. Nov.* 23 (1838) - as *Echinocactus*

This is the type species of the genus, and its somewhat unusual appearance, lacking the sinuous, multiple ribs of others, is quite different from all others in the genus. It therefore leaves no doubt in anybody's mind as to its identity, as it is the only one with this characteristic, a low number of wide, hardly undulating ribs, broadly triangular in section.

It was described as solitary, depressed to globose, glaucous-green, 5 to 10cm tall; plants



Figure 7. *Stenocactus obvallatus* north west of San Luis Potosí, SLP, Mexico. Photograph: John Pilbeam



Figure 8. *Stenocactus obvallatus* at Charco del Ingenio, Guanajuato, Mexico. Photograph: John Pilbeam



Figure 9 *Stenocactus ochoterenanus* in habitat at Llano de San Felipe, Guanajuato, Mexico. Photograph: John Pilbeam

seen around San Luis Potosí by the author were mostly about 10cm in diameter. Ribs about 10 to 14, acute but stout, crenated with transverse grooves at the areoles, the areoles about 2cm apart, woolly in youth but naked later. Spines 3 to 5 (to 7), flattened, one broader and longer, to about 3cm long and more central, the lower pair when present more slender and hardly flattened, yellow or reddish in



Figure 10. *Stenocactus ochoterenanus* in habitat eastern Zacatecas, Mexico. Photograph: John Pilbeam



Figure 11. *Stenocactus phyllacanthus* in cultivation. Photograph: John Pilbeam



Figure 12. *Stenocactus phyllacanthus* Preston-Mafham 28 from west of Rio Verde, San Luis Potosí, Mexico. Photograph: Graham Charles

youth becoming greyish-white. Flowers 3cm long, 4cm wide, white with purplish-red mid-stripe, short-tubed, almost funnel-shaped, stigmas white. Fruit brownish-green, seed brownish.

Reported from Aguascalientes, Guanajuato, Hidalgo, Jalisco, San Luis Potosí, and Zacatecas.

S. crispatus (De Candolle) Berger ex Hill, *Index Kewensis*, supplement 8: 228 (1933); De Candolle, *Mem. Mus. Hist. Nat.* 17: 37, 115, t.8 (1828) - as *Echinocactus*.

Stem usually solitary, depressed-globose, 8 to 12cm in diameter, ribs 25 or more, sinuous. Usually 4 central spines, thin or somewhat flattened, the upper longer, to 2cm or more, up-standing. Radial spines usually 6, 5 to 10mm long, white to grey in age. Flowers quite large for the genus, 3.5cm long, the tube also long and slim, differing this species from *S. obvallatus* in its many forms, the inner petals pale lilac, to nearly white with purple midstripe and throat.

Reported from Hidalgo, Mexico, Oaxaca, Puebla, Tlaxcala, south of the Trans-Mexican Volcanic Belt, running west to east across the top of the lower quarter of Mexico.

S. densispinus Schmoll, *Cact. Succ. J. Amer.* 6: 36-7, with fig. (1934) *nom. nud.* - as *Echinofossulocactus*; C, Schmoll ex Pechanek, *Cactus* (Brussels) 3(9): 132 (1971); Bravo, *Cact. Suc. Mex.* 14(4): 85 (1969); N.P. Taylor, *Cact. Succ. J. (GB)* 41(2): 40 (1979)

S. dichroacanthus (Martius) Berger, *Kakteen* 249 (1929); Martius ex Pfeiffer, *Enum. Cact.* 62 (1837) - as *Echinocactus*

(var.) *spinosior* Monville ex Labouret, *Monogr. Cact.* 213 (1853); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 334 (1991) - as synonymous with *S. dichroacanthus*

var. *violaciflorus* (Quehl) Bravo, *Cact. Suc. Mex.* 27(1): 17 (1982); Quehl, *Monatsschr. Kakt.* 22: 102 (1912) - as *Echinocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 335-336, figs. 418,419 (1991)

S. erectocentrus (Backeberg), *Die Cact.* 5: 2772 (1961); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 330 (1991) - as *Echinofossulocactus*

S. flexispinus (Salm-Dyck) Bravo, *Cact. Suc. Mex.* 14(2): 44 (1969) - as *Echinofossulocactus*; Salm-Dyck, *Cact. Hort. Dyck* 1849. 159 (1850) - as *Echinocactus*

Bravo says this may equal *S. xiphacanthus*.

S. gladius Guerke & Vaupel, *Blüh. Kakt.* **3**: t.159 (1914) as *Echinocactus*; Bravo-Hollis & Sanchez-Mejorada, var. *carneus* Schmoll, *Cact. Succ. J. Amer.* **6**: 37 (1934) no. subnud.; Bravo, *Cact. Suc. Mex.* **14(4)**: 85 (1969)

S. grandicornis (Lemaire) Berger, *Kakteen* 249 (1929); Lemaire, *Cact. Gen. Nov. Sp.* 39 (1839) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* **14(2)**: 34 (1969); Meyran, *l.c.* **20(1)**: 3 (1975) var. *fulvispinus* Bravo, *Cact. Suc. Mex.* **14(2)**: 34 (1969)

S. guerraianus (Backeberg), *Fedde's Repert.* ****51**: 63 (1942) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* **14(2)**: 41 (1969); Meyran, *l.c.* **18(4)**: 102 (1973); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 342, (1991) Bravo says may equal *S. lamellosus*.

S. hastatus (Hopffer) Berger, *Kakteen* 245 (1929); Hopffer en Schumann, *Gesamtb. Kakteen* 376 (1898) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14(2)**: 42 (1969) ; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 340 (1991) - as having affinity to *S. lamellosus*.

S. heteracanthus (Muehlenpfordt) Berger, *Kakteen* 247 (1929); Muehlenpfordt, *Allg. Gartenz.* **13**: 345 (1845) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* **14(3)**: 68 (1969) - as *Echinofossulocactus*; Meyran, *l.c.* **20(2)**: 35 (1975); Martinez & Sotelo, *l.c.* **35(4)**: 91 (1990))

(*S.*) *Echinocactus hookeri* Muehlenpfordt, *Allg. Gartenz.* **13**: 345 (1845); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 331 (1991) - as syn. *S. phyllacanthus*.

S. kellerianus (Krainz), *Schweizer Garten.* **1**: 10 (1946) - as *Echinofossulocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 333 (1991) - as maybe a form of *S. pentacanthus*.

S. lamellosus (Dietrich) Berger, *Kakteen* 248 (1929); Dietrich, *Allg. Gartenz.* **15**: 177 (1847) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14(2)**: 40 (1969); Meyran, *l.c.* **18(4)**: 101, figs. 421–424 (1973); N.P. Taylor, *Cact. Succ. J. (GB)* **41(2)**: 38



Figure 13. *Stenocactus sulphureus* in cultivation from the Barranca de Tolimán, Hidalgo, Mexico.

Photograph: John Pilbeam

(1979) - as probably synonymous with *S. crispatus*, and indistinguishable from *S. lancifer*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**:338 (1991)

var. *fulvescens* Salm-Dyck, *Cact. Hort. Dyck.* 1849: 30 (1850) - as *Echinocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**:338 (1991) - as synonymous with the type.

(var.) *orthogonus* Monville ex Labouret, *Monogr. Cact.* 220 (1853) - as *Echinocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 338 (1991) - as synonymous with the type.

S. lancifer (Dietrich) Berger [*Kakteen* 1929] ex Backeberg & Knuth, *Kaktus ABC* 354 (1936); Dietrich, *Allg. Gartenz.* **7**: 154 (1839) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14(3)**: 60 (1969) - as *Echinofossulocactus*; N.P. Taylor, *Cact. Succ. J. (GB)* **41(2)**: 38 (1979) - as indistinguishable from *S. lamellosus*, and thence probably referable to *S. crispatus*. Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: .341, fig. 425 (1991).

This old name based on a plant from Mexico with no more detailed locality is dubiously identifiable, but has very distinctive spination, as shown in the photograph included here, reflecting that of the original illustration in *Abbild. Beschr. Cact.* (1848).

Table 1. Principal characters of *Stenocactus* species

Name	Date of First description	Ribs	CSP	RSP	Flowers.	State
<i>S. albatrus</i>	Dietrich 1846	ca. 3–5	4	ca.10	Wh	NL, DUR?
<i>S. anfractus</i>	Martius 1837	many	3	7	Wh/Pu	HGO
<i>S. arrigens</i>	Link 1840	24	4	6–8	Wh/Pu	?
<i>S. boedekerianus</i>	Berger ex Backeberg & Knuth 1936	ca.40	6–8	ca.20	?	ZAC
<i>S. bustamantei</i>	n.n. Bravo 1937	35	3	8–9	Wh/Pu	HGO
<i>S. caespitosus</i>	Backeberg 1950	ca.27	3	4	Wh/Gr	?
<i>S. confusus</i>	Britton & Rose 1922	26–30	1	4–5	Pu	?
<i>S. coptonogonus</i>	Lemaire 1838	10–14	3	2	Wh/Pu	GTO, HGO, SLP, ZAC
<i>S. crispatus</i>	De Candolle 1828	ca. 25	10 or 11	unequal	Li/Pu	HGO, MEX, OAX,
<i>S. dichroacanthus</i>	Martius 1837	32	3	4–6	?	HGO, SLP, ZAC
<i>S. erectocentrus</i>	Backeberg 1961 n.n.	50+	3	5–6(–9)	?	?
<i>S. flexispinus</i>	Salm-Dyck 1850	30–31	3	4	?	?
<i>S. gladius</i>	Link & Otto 1827	14–22	6	4	?	?
<i>S. grandicornis</i>	Lemaire 1839	34–35	3	5–8	Wh/Pu	?
<i>S. guerraiianus</i>	Backeberg 1942	30–35	3	5	Wh/Vi	HGO
<i>S. hastatus</i>	Hopffer 1898	35	4	5–6	Wh-Ye	HGO
<i>S. heteracanthus</i>	Muehlenpfordt 1845	30–34	4	11–13	Pi/Vi	HGO
<i>S. kellerianus</i>	Krainz 1946	50–60	3	2	Wh/Pi	?
<i>S. lamellosus</i>	Dietrich 1847	ca.30	—	—5–6—	?	HGO, QRO, VER?
<i>S. lancifer</i>	Dietrich 1839	numerous	4	4	Pi	?
<i>S. lexarzai</i>	Bravo 1937 n.n.	40–50	4	8–10	Pi/Vi	HGO
<i>S. lloydii</i>	Britton & Rose 1922	very numerous	3	10–15	Wh	ZAC
<i>S. multicostatus</i>	Hildmann 1890	80–120	3	3(–6)	Wh/Pi	CHIH, COAH, DUR
<i>S. obvallatus</i>	De Candolle 1828	ca.25	4	4	Wh/Vi	MEX, MEXDF HGO?
<i>S. ochoterenanus</i>	Tiegel 1933	ca.30	4	22+	Wh/Pi	GTO, QRO, ZAC
<i>S. pentacanthus</i>	Lemaire 1838	ca.25(40–50)	3	2	deepVi	HGO, QRO
<i>S. phyllacanthus</i>	Martius 1836	30–35	(1)2(3)	(2)4(7)	PaleYe	GTO,HGO, SLP, ZAC, SIN?
<i>S. sulphureus</i>	Dietrich 1845	numerous	4–5	4	Ye	HGO
<i>S. tricuspis</i>	Scheidweiler 1841	30–55	3	2	Gr-Ye	SLP
<i>S. vaupelianus</i>	Werdermann 1931	30–40	1–2	15–25	Ye	HGO
<i>S. violaciflorus</i>	Quehl 1912	ca.35	3	4	Wh/Vi-Pu	AGS, ZAC
<i>S. wippermannii</i>	Muehlenpfordt 1846	35–40	3–4	18–22	Ye/PaleYe	GTO, HGO, ZAC
<i>S. xyphacanthus</i>	Miquel 1838					
<i>S. zacatecasensis</i>	Britton & Rose 1922	ca.55	3	10–12	Li/Pu	GTO, SLP, ZAC



Figure 14. *Stenocactus vaupelianus* Lau 1180 in cultivation. From Sierra de San Miguel, San Luis Potosí, Mexico.

Photograph: Graham Charles

S. lexarzai Bravo, *Cact. Suc. Mex.* 400 (1937); Croizat, *Cact. Succ. J. Amer.* 14: 111 (1942) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* 14(3): 64 (1969); Meyran, *l.c.* 17(2):41 (1972)

S. lloydii (Britton & Rose) Berger, *Kakteen* 245 (1929); Britton & Rose, *Cact.* 3: 113 (1922) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* 14(3): 66 (1969); Pechanek, *l.c.* 28(1):13 (1983)

(*S.*) *Echinocactus melsmianus* Wegerner, *Allg. Gartenz.* 12: 65 (1844); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 331 (1991) - as synonymous with *S. phyllacanthus*.

S. multiareolatus Bravo, *An. Inst. Biol.* 30: 59 (1959) - as *Echinofossulocactus*; *Cact. Suc. Mex.* 14(2): 39 (1969); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 334,335 (1991) - as synonymous with *S. dichroacanthus*.

S. multicostatus (K Schumann) Hildmann, *Index Kewensis* supplement 8: 228 (1933)

S. obvallatus (De Candolle) Hildmann, *Index Kewensis* supplement 8: 228 (1933); De Candolle, *Mem. Mus. Hist. Nat.* 17: 37,38, t. 9 (1828) - as *Echinocactus*; Mocino, *Fl. Mex. ined.*, drawing of *Cactus obvallatus*.

var. *arrigens* Meyran, *Cact. Suc. Mex.* 17(2): 43 (1972)

S. ochoterenanus (Tiegel) Bravo, *Cact. Mex.* 401 (1937); Tiegel, *Moellers Deutsche Gartner-Zeitung* 48: 379 (1933) - as *Echinofossulocactus*

S. parksianus Whitmore, *Cact. Succ. J. Amer.* 5: 589, with fig. (1934) nom. nud. - as *Echinofossulocactus*; Schmoll, *l.c.* 6:37 (1934) nom. subnud.; Bravo, *Cact. Suc. Mex.* 14(4): 86 (1969)

S. pentacanthus (Lemaire) Berger, *Kakteen* 247 (1929); Lemaire, *Cact. Aliq. Nov.* 27 (1838) - as *Echinocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* 2: 332, figs. 413,414,415 (1991) var. *david boudetianus* Bravo, *Cact. Suc. Mex.* 14(2): 36 (1969); Boudet, *Cactus Rev. Franc.* 67: 40 (1960)



Figure 15. *Stenocactus vaupelianus* Lau 1180 in cultivation. From Sierra de San Miguel, San Luis Potosí, Mexico. Photograph: Graham Charles

S. phyllacanthus (Martius) Backeberg & Knuth, *Kaktus-ABC* 354 (1936); Martius ex Dietrich & Otto, *Allg. Gartenz.* **4**: 201 (1836) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14**(1): 18 (1969); Meyran, *l.c.* **17**(2): 35 (1972); Nagl, *l.c.* **31**(2): 48 (1986) - photo; ; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 330 (1991) var. *hookeri* (Muehlenpfordt) Bravo, *Cact. Suc. Mex.* **14**(1): 19 (1969) - as *Echinofossulocactus*; Muehlenpfordt, *Allg. Gartenz.* **13**: 345 (1845) - as *Echinocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 331 (1991) - as synonymous with the type;
 (var.) *macracanthus* Lawr. in Loudon, *Gard. Mag.* **17**: 317 (1841); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 330 (1991) - as synonymous with the type;
 (var.) *micracanthus* Lawr. in Loudon, *Gard. Mag.* **17**: 317 (1841); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 330 (1991) - as synonymous with the type;
 (var.) *tricuspidatus* Foerster, *Handb. Cact.* 311 (1846); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 331 (1991) - as synonymous with the

type.

S. rectospinus Whitmore, *Cact. Succ. J. Amer.* **5**(12): 589 (1934) nom. nud. - as *Echinofossulocactus*

S. recurvispinus Bravo, (1969) nom. prov.

S. reichianus Bravo (1969) nom. prov.

S. robustus Whitmore, *Cact. Succ. J. Amer.* **5**(12): 589 ((1934) nom. nud; H. Bosman, *Succulenta* **54**(4): 71 with fig. (1975) nom. inval.; N.P. Taylor, *Cact. Succ. J. GB* **41**(2): 42 (1979) - referred to *S. crispatus*.

S. rosasianus Whitmore, *Cact. Succ. J. Amer.* **5**(12): 589 (1934) nom. nud. Schmoll, *l.c.* **6**(1): 37 with illn. (1934) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* **14**(4): 86 (1969)

S. sphacelatus Whitmore, *Cact. Succ. J. Amer.* **5**(12): 590 (1934); Bravo, *Cact. Suc. Mex.* **14**(4): 86 (1969)

S. sulphureus (Dietrich) Bravo, *Cact. Suc. Mex.* **27(1)**: 16–17 (1982); Dietrich, *Allg. Gartenz.* **13**: 170 (1845) - as *Echinocactus*; Backeberg, *Die Cact.* **5**: 2790 (1961); Meyran, *Cact. Suc. Mex.* **22(2)**: 39 with fig. (1979) - as *Echinofossulocactus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 336, fig.420 (1991)

S. tegelbergii Schutz, *Kaktusy* **8**: 93–94 (1972)
nom. inval.

S. tellii Hort., *Monatsschr. Kakteenk.* **11**: 161 (1901) - as *Echinofossulocactus*; Bravo, *Cact. Suc. Mex.* **14(3)**: 68 (1969)

S. tetraxiphus (Otto in Schumann) Berger, *Kakteen* 244 (1929); Otto in Schumann, *Gesamtb. Kakt.* 363 (1898) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14(4)**: 83 (1969) - as *Echinofossulocactus*; Meyran, *l.c.* **17(2)**:41 (1972)

var. *longiflora* Bravo, *Cact. Suc. Mex.* **14(4)**: 84 (1969)

Bravo says may equal *S. lezarzai*.

S. tricuspidatus (Scheidweiler) Backeberg & Knuth, *Kaktus-ABC* 355 (1936); Scheidweiler, *Allg. Gartenz.* **9**: 51 (1841) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14(1)**: 19 (1969); Meyran *l.c.* **17(2)**: 35 (1972); N.P. Taylor, *Cact. Succ. J. GB* **41(2)**: 41 (1979) - as referred to synonymy with *S. phyllacanthus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 330 (1991) - as synonymous with *S. phyllacanthus*

var. *longispina* Bravo, *Cact. Suc. Mex.* **14(1)**: 20 (1969) - as *Echinofossulocactus*

S. vaupelianus (Werdermann) Backeberg & Knuth, *Kaktus-ABC* 355 (1936); Werdermann, *Notizbl. Bot. Gart. Mus. Berlin-Dahlem* **11**: 273 (1931) - as *Echinofossulocactus*; Meyran, *Cact. Suc. Mex.* **21(2)**: 51(1976)

var. *rectispinus* Bravo, *Cact. Suc. Mex.* **14(3)**: 65 (1969) - as *Echinofossulocactus*

S. violaciflorus (Quehl) Berger ex Bravo, *Cact.* 407 (1937); Quehl, *Monatsschr. Kakteenk.* **22**: 102 (1912) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.*

14(2): 37 (1969); Meyran, *l.c.* **17(2)**: 43 (1972); N.P. Taylor, *Cact. Succ. J. (GB)* **41(4)**: 42 (1979) - as probably synonymous with *S. crispatus*; Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 336 (1991) - as synonymous with *S. dichroacanthus* var. *violaciflorus*

S. wippermannii (Muehlenpfordt) Berger, *Kakteen* 246 (1929); Muehlenpfordt, *Allg. Gartenz.* **14**: 370 (1846) - as *Echinocactus*

S. xiphacanthus (Miquel), *Linnaea* **12**: 1. pl.f.1 (1838) - as *Echinocactus*; Bravo, *Cact. Suc. Mex.* **14(2)**: 38 (1969); Bravo-Hollis & Sanchez-Mejorada, *Cact. Mex.* **2**: 334 (1991) - as synonymous with *S. dichroacanthus*; N.P. Taylor, *Cact. Succ. J. GB* **41(2)**: 42 (1979) - as a name of no value, plants in horticulture referred to *S. crispatus*.

S. zacatecasensis (Britton & Rose) Berger, *Kakteen* 246 (1929); Britton & Rose, *Cact.* **3**: 113 (1922) - as *Echinofossulocactus*; N.P. Taylor, *Cact. Succ. J. GB* **41(2)**: 42 (1979) - referred to *S. multicoastatus*.

var. *moranensis* Bravo, *Cact. Suc. Mex.* **14(3)**: 67 (1969) - as *Echinofossulocactus*.

Further Reading

HEATH, P.V. (1989). The Question of *Echinofossulocactus* (Cactaceae). *Taxon* **38(2)**: 281–288.

HUNT, D.R. (1980). Decent re-burial for *Echinofossulocactus* Lawr. *Cact. Succ. J. Gr. Brit.* **42(4)**: 105–107.

PILBEAM, J. & WEIGHTMAN, W. (2006). *Ariocarpus et cetera*. British Cactus & Succulent Society.

TAYLOR, N.P. (1979). A Commentary on the genus *Echinofossulocactus* Lawr. *Cact. Succ. J. Gr. Brit.* **41(2)**: 35–42.

TJADEN, W.L. (1982). Proposal to conserve *Stenocactus* (K. Schum.) Berger (1929) over *Echinofossulocactus* Britton & Rose (1922) and other generic names (Cactaceae). *Taxon* **31(3)**: 570–573.

ZÁHORA, J. ET AL (2017). Field observations and threatening environmental factors of *Echinofossulocactus sulphureus* (Dietr.) Meyrán.

MY MEXICAN MEMORIES (1)

Zlatko Janeba starts a new series of articles, this time about his adventures in Mexico looking for cacti.

Photographs by the author.

Sometime at the beginning of year 2007, we (My friend Richard Kalas from Albuquerque, NM and I) decided to make a short early spring visit to Mexico. At that time I used to live and work in Los Angeles (CA). I got a return ticket (LAX to ABQ and back for \$253) and on 10th February I was on my way to Albuquerque. I was picked up by Richard just after my arrival at ABQ and we immediately set out towards Mexico.

We drove south from Albuquerque along Interstate 25 (I-25) to Las Cruces (NM) and then from El Paso (TX) eastwards along I-10. We felt tired and uncomfortable after a long drive and we clearly needed a “biological break”. We de-

ecided to stop east of the town Sierra Blanca (TX), to get some fresh air and to explore the low hills next to the highway. It was 4 pm, the February sun started to descend quite early and the light made the surrounding landscape highly attractive. We encountered the typical Chihuahuan Desert around us with Creosote bush (*Larrea tridentata*) and ocotillo (*Fouquieria splendens*) being the dominant plant species on the gravelly soils (Fig.1). After a while we were able to find various cacti, namely *Echinocactus horizonthalonius* (Figs.1 & 2), *Echinocereus dasyacanthus* (Fig.3) and *E. chloranthus*, *Coryphantha macromeris* ssp. *runyonii*, *Mammillaria lasiacantha* (Fig.4), *Cylindropuntia acanthocarpa*, *Opuntia macrocentra* (Fig.5),



Figure 1. A typical view of the Chihuahuan Desert along I-10, East of Sierra Blanca, Texas. Dominant plants are Creosote bush (*Larrea tridentata*) and ocotillo (*Fouquieria splendens*), *Echinocactus horizonthalonius* can be seen in the foreground on the left side and shrubs of *Opuntia macrocentra* in the middle on the right side



Figure 2. A nice specimen of *Echinocactus horzonthalonius*, East of Sierra Blanca, Texas.

as well as some yuccas. We really enjoyed our first cactus stop in the field. Later, we stayed overnight in a cheap hotel (\$35) in Sonora (Texas).

The following morning (11th February) we headed to Del Rio (Texas) and drove south along US 277. We made our first stop some 50 miles South of Del Rio next to low limestone hills. Just next to the road among low bushes we could observe *Homalocephala (Echinocactus) texensis* and

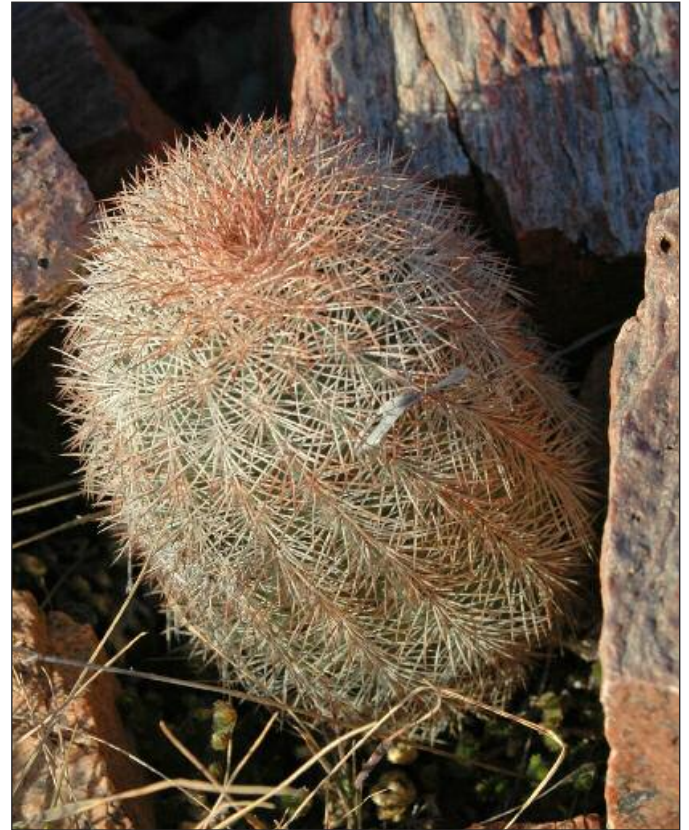


Figure 3. *Echinocereus dasyacanthus* growing among the rocks, East of Sierra Blanca, Texas.



Figure 4. *Mammillaria lasiacantha* as a tiny white ball hiding among the rocks, East of Sierra Blanca, Texas.



Figure 5. Quite a spiny form of *Opuntia macrocentra*, growing next to I-10, East of Sierra Blanca, Texas. This species can be easily confused with related *O. azurea*, which grows in the same area.

Echinocereus dasyacanthus. A little bit higher on one of the hills we found *Ferocactus hamatacanthus*, *Echinocereus enneacanthus*, *E. aff. coccineus* ssp. *transpecosensis* (Fig.6), *Mammillaria meiacantha*, *Cylindropuntia leptocaulis*, and some opuntias.

Later we entered Mexico at Piedras Negras

and drove further to the South. Our first stop in Mexico was Southwest of Allende (Coahuila) next to Federal Hwy 57 (N28.16.904 W100.55.502, at 295m). There we were excited to observe our first mexican cacti, although the species were more or less the same as during our previous stops in Texas (USA). We discovered *Coryphantha echinus* (with almost straight central spines, Fig.7), probably *C. ramillosa*, but also *Echinocereus enneacanthus*, *Hamatocactus setispinus* (by some authors considered to be a *Ferocactus* or *Thelocactus*), *Homalocephala texensis*, *Mammillaria lasiacantha*, *Opuntia leptocaulis*, and *Agave lechuguilla*.

We made our last cactus-hunting stop of the day South of Sabinas (Coahuila) on quite a promising limestone hill, although covered with relatively dense thorny vegetation. Already at the foothill we discovered, to our big surprise, two specimens of *Ariocarpus retusus* (Figure 8). But the importance of the discovery was realized much later and we have reported it in an article later [Janeba & Snicer (2009), *Cactus and Succulent Journal U.S.*, 81(2): 2–6.]. Very briefly, our



Figure 6. A nice cluster of *Echinocereus coccineus* ssp. *transpecosensis* (aff.), South of Del Rio, Texas, although this species is usually reported from the area more to the East from here.



Figure 7. *Coryphantha echinus*, Southwest of Allende, Coahuila.

finding extended the distribution range of *A. retusus* by some 100km to the North, as the previous most northerly reported location was from Castaños (Coahuila). Furthermore, the elevation was much lower (about 500m) at our new spot since *A. retusus* usually grows above 800m. Since this ariocarpus species grew there together with *Ancistrocactus brevihamatus* ssp. *brevihamatus* (Figure 9) (commonly it grows with *A. brevihamatus* ssp. *pallidus* in the so-called Saltillo–Paila–Big Bend vegetation association), this was completely new vegetation association for *A. retusus*, namely Tamaulipas lowlands (or at least its borderline areas). At the same place we also observed *Mammillaria lasiacantha*, *Coryphantha* aff. *echinus*, *Dasilirion* sp., *Yucca* sp., *Agave lechuquilla*, and *Efedra* sp.

That day we ended up quite tired in a hotel in Saltillo (for \$ 60).

[Zlatko Janeba](#)



Figure 8. A big surprise! We found *Ariocarpus retusus* at the base of a low limestone hill South of Sabinas, Coahuila. In this atypical habitat for *A. retusus*, we were able to find only two specimens.



Figure 9. *Ancistrocactus brevihamatus* ssp. *brevihamatus* with flowers buds, South of Sabinas, Coahuila.

AEONIUM SPECIES AND FIVE NATURAL HYBRIDS OF LA PALMA (CANARY ISLANDS)

Marco Cristini gives us a detailed description of the *Aeonium* species and hybrids he saw on La Palma illustrated with his wonderful pictures.

Photographs by the author.

The Canary Islands are well-known for their endemic flora. Among succulent plants, the *Crassulaceae* are doubtless one of the most important families, with more than fifty species growing on all islands and displaying a vast array of adaptations to the different environments. The genus *Aeonium* is considered an example of insular radiation and has been giving botanists food for thought since the early nineteenth century, as the relationship among different species and the taxonomic rank of many populations are far from clear.

This is evident on La Palma, the most north-westerly of the Canary Islands (Figure 1), which hosts quite a few *Aeonium* species often showing a high degree of variability. I visited the island in August, 2019 and was able to appreciate both the great botanical richness of its succulent flora and the challenges facing every taxonomist who tries to systematize the local *Crassulaceae*. In the following pages, I will offer a brief description of the *Aeonium* species I saw, their distribution and the differences between distinct populations.

Aeonium arboreum var. *holochrysum*

By far one of the most widespread *Crassulaceae* species in cultivation, *Aeonium arboreum* grows well in many countries enjoying a Mediterranean climate and has given birth to famous cultivars such as *Aeonium* 'Atropurpureum' or *A.* 'Zwartkop'. According to Liu's revision of the genus, *Aeonium arboreum* var. *holochrysum* grows on La Palma, El Hierro, Tenerife and La Gomera, whereas *Aeonium arboreum* var. *arboreum* can be found on Gran Canaria and *Aeonium arboreum* var. *rubrolineatum* on La Gomera, although I was unable to differentiate it from *A. arboreum* var. *holochrysum* when I visited the island.

A. arboreum var. *holochrysum* is a well-branched succulent shrub up to 2m tall with flat

rosettes of light green leaves often striped longitudinally with red. In summer, the inner rosette is made up of young, shorter and tightly packed leaves which are easily distinguishable from the other, older and longer leaves.

This species is widespread on La Palma. I found it from Fuencaliente, near the southern tip of the island, to El Palmar in the North. It usually grows on stone walls, steep slopes, road embankments and rocks, often near other *Aeonium* species such as *A. davidbramwellii* or *A. goochiae*. Though common on La Palma, it is not always easy to find a population of healthy and good-looking specimens, especially in summer. I found one near Bosque de Dragos (Figure 2), along the path from El Jaral to El Barranquito (Garafía), but there are nice specimens also near Puntallana (Figure 3), along the path GR 130 towards La Galga, and on Risco de la Concepción (Figure 4), a former volcano rising above the capital of the island, Santa Cruz de la Palma. The view from the top of Risco de la Concepción is wonderful (Figure 5) and it can be reached by car, so I recommend this place to all people who would like to admire both an impressive landscape and a good-looking population of aeoniums.

A. arboreum var. *holochrysum* does not show much variability. Of course, there are bigger plants in the barrancos, where there is more humidity, and on stone walls near cultivated fields, but the basic features of this species are fairly constant throughout the island.

Aeonium aureum

Often considered a member of genus *Greenovia*, *Aeonium aureum* is a stemless succulent whose rosettes have a diameter of 8–25cm. The plant is usually solitary, but if conditions are good it can produce offsets. It grows mostly on north-facing vertical cliffs in the pine forest zone, but can be also found in the

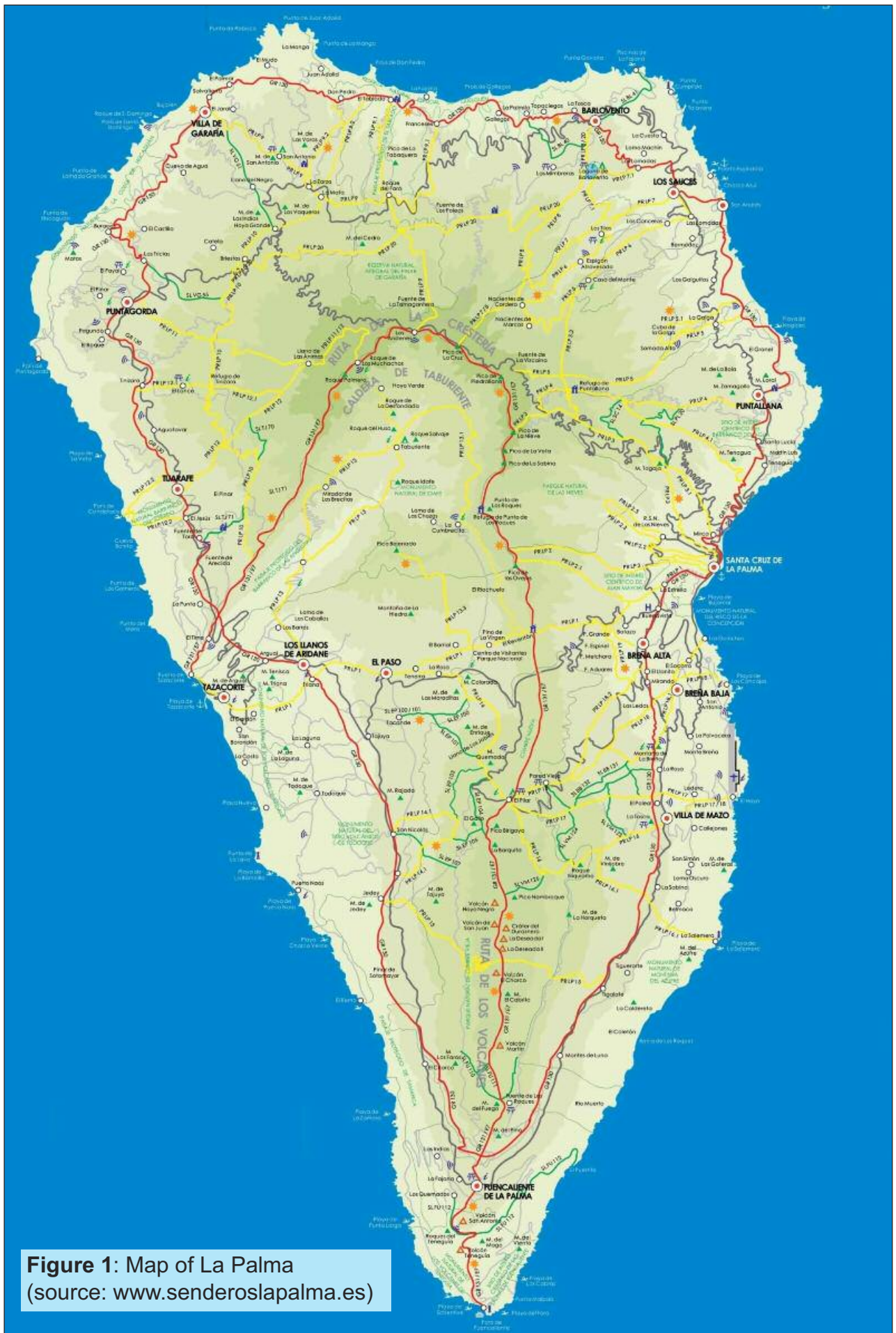


Figure 1: Map of La Palma
(source: www.senderoslapalma.es)



Figure 2: Garafía, Bosque de Dragos, *Aeonium arboreum* var. *holochrysum*.



Figure 3: Puntallana, *Aeonium arboreum* var. *holochrysum*.



Figure 4: Santa Cruz, Risco de la Concepción, *Aeonium arboreum* var. *holochrysum*.

subalpine zone. The boundaries between this species and *A. diplocyclum* are unclear (NYFFELER 2003: 19) and it is often impossible to distinguish between these succulents, which are both said to grow on La Palma, therefore they are considered here as part of the same taxon, which occurs also on Tenerife, Gran Canaria, La Gomera and El Hierro.

When visiting the other islands, I usually saw

this plant growing at over 800–1000m, yet its distribution is quite different on La Palma. I found it in Barranco de las Angustias, at the beginning of the path leading from the parking El Campanario to Playa de Taburiente (around 300m) growing near *A. nobile* on rocks in the pine forest, and in Barranco de la Luz (Garafía), again around 300–350m (Figure 6), not to mention the western Barranco de los Gomereros (600m, Figure 7). I noticed that the pine forest of La Palma sometimes begins at 300–350m, whereas on El Hierro or Tenerife I usually saw it at altitudes over 1000m, therefore it is not surprising to find species usually associated with the pine forest much closer to the sea than on other islands.

During my stay on La Palma, I mostly remained near the shore, following the path GR 130, so I was unable to observe the populations of *A. aureum* located on the mountains at the centre of the island. Interestingly, when I walked from Los Llanos to Playa de Taburiente, in the middle of the famous Caldera de Taburiente, I found *A. aureum* only once, whereas *A. nobile* is fairly common on the steep slopes of Barranco de las Angustias up to La Estrechura (Figure 8).

Aeonium canariense* var. *palmense

One of the most striking species of the genus, *Aeonium canariense* var. *palmense* is a fleshy succulent with a short stem covered with dried leaves. Although it can be a solitary plant, it usually branches from the base and forms tightly packed groups of rosettes up to 35cm in



Figure 5: View from the top of Risco de la Concepción.



Figure 6: Garafía, Barranco de la Luz, *Aeonium aureum*.

diameter. Its leaves are obovate to oblanceolate, mucronate, pubescent and slightly viscid. It grows on both La Palma and El Hierro on shady and moist slopes up to 1200m.

A. canariense var. *palmense* usually thrives in the barrancos, where there is enough shade and



Figure 7: La Punta, Western Barranco de los Gomereros, *Aeonium aureum*.

humidity. Spotting this species is not difficult, since it is one of the largest aeoniums of La Palma and it forms big populations, with hundreds of plants. North of western Barranco de los Gomereros, near Fuente de Toro (Tijarafe), I found plenty of healthy specimens (Figures 9



Figure 8: Barranco de las Angustias, La Estrechura.



Figure 9: Fuente de Toro, A group of *Aeonium canariense* var. *palmense*.



Figure 10: Fuente de Toro, *Aeonium canariense* var. *palmense*.



Figure 11: Fuente de Toro. An unusual *Aeonium canariense* var. *palmense*.



Figure 12: Barranco de las Angustias, towards Caldera de Taburiente. A pale *Aeonium canariense* var. *palmense*.



Figure 13: Barranco del Agua, A large and pale *Aeonium canariense* var. *palmense*.



Figure 14: Barranco del Jurado, A two-headed *Aeonium canariense* var. *palmense*.

& 10), and also a few hybrids. Many plants had margins tinged with red and were curled into a tight rosette due to the drought, but one had leaves which were longer, narrower and paler, although surrounding specimens looked fairly normal (Figure 11). I cannot rule out the possibility of a hybrid origin, but the plant is more likely to be a mere sport.

I spotted other pale forms of *A. canariense* var. *palmense* in Barranco de las Angustias (after La Estrechura), in the Parque Nacional de la Caldera de Taburiente. A few looked like a cross with *A. aureum* (Figure 12), but I was unable to spot this species nearby. I found another unusual specimen in the neighbourhood of Santa Cruz: apart from being quite big (30cm in diameter, with leaves 7.5cm wide), its foliage was paler and less pubescent than in the average specimens of *A. canariense* var. *palmense* (Figure 13). Upon seeing it, I immediately thought of a hybrid with *A. davidbramwellii*, but the (likely) crosses between these two species which I observed looked quite different. I photographed a third peculiar specimen in Barranco del Jurado: it was a two-headed plant (Figure 14), which possibly developed two rosettes after being damaged during the early phase of its growth.

A. canariense var. *palmense* grows together with *A. goochiae* and *A. arboreum* var. *holochrysum* near El Palmar, in the northern part of the island. Again, it would be tempting to identify unusual specimens with fairly rhombic (instead of oblanceolate) leaves as hybrids, but to be sure it would be necessary to see the flowers (Figure 15).

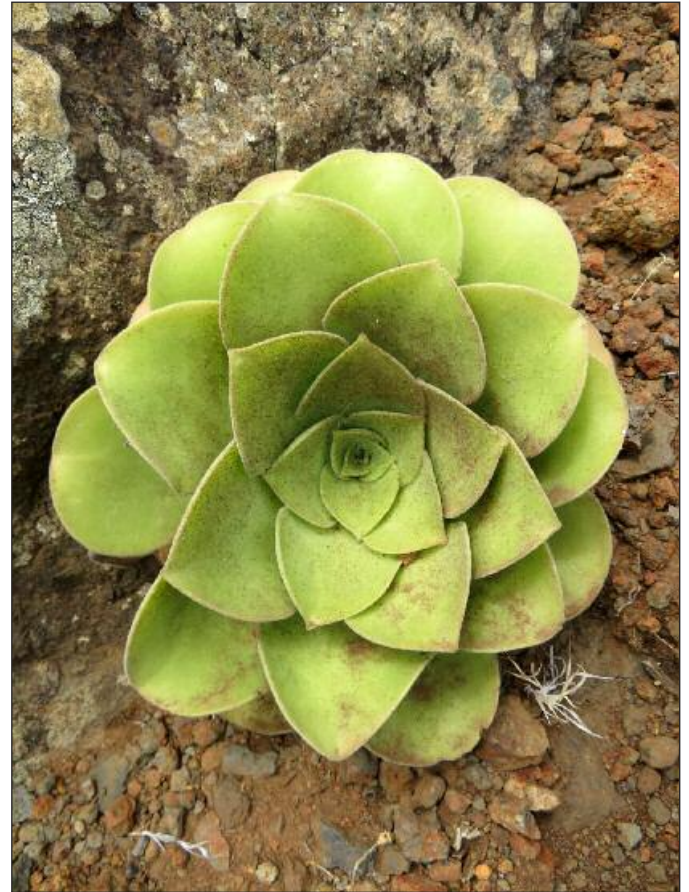


Figure 15: El Palmar, *Aeonium canariense* var. *palmense*, perhaps a cross with *A. goochiae*.

Interestingly, I noticed that *A. canariense* var. *palmense* mostly grows in barrancos or other shaded locations on La Palma, whereas it is widespread on the northern coast of El Hierro (e.g. along Pista del Canal towards Sabinosa).

Aeonium davidbramwellii

A nightmare for every taxonomist, *Aeonium davidbramwellii* is a highly variable species which grows throughout La Palma. It is clearly a member of the *Aeonium urbicum* – *A. appendiculatum* – *A. hierrense* complex, but its relationship with these species is unclear. There are single-stemmed, large specimens which look like *A. urbicum* or *A. appendiculatum*, whereas many-branched, dwarf specimens are more similar to a small *A. haworthii* (Figure 16). The taxonomic situation of this species is further complicated by the fact that different forms can be found growing side by side in almost every part of the island (Figure 17).

A good place to appreciate the extreme variability of *A. davidbramwellii* is the south of the island, especially between Fuencaliente, Volcán Teneguia and Llano del Tanque, where I



Figure 16: Nine different forms of *Aeonium davidbramwellii* which I photographed throughout the island.

saw single-stemmed specimens reminiscent of *A. urbicum* / *A. hierrense* growing together with branched plants more similar to *A. haworthii* or *A. valverdense* (Figures 18 & 19). Moreover, some specimens have pruinose and elongated leaves (Figure 20), while others display short, succulent and reddish leaves. The degree of branching can also vary widely within a small area. One can find single-stemmed plants, few-branched specimens and much branched ones (somewhat reminiscent of a small *A. arboreum* var. *holochrysum*) on the same lava field or rocky slope.

It would be pointless to think of these aeoniums as different species or subspecies, since almost every intermediate form can be found. I noticed that single-stemmed specimens seem to grow more often in sheltered places or where water is available throughout the year (e.g. near cultivated fields or streams), whereas very branched plants prefer sunny and exposed

spots (e.g. along a path).

Single-stemmed, large plants grow in Las Manchas, Barranco de Nogales (Figure 21), Tenagua (Figure 22) and near Don Pedro (between Garafía and Barlovento), where I again found pale and pruinose specimens (Figure 23), which I observed also along a path bordering the so-called Bosque de Dragos, near Garafía, and in Las Manchas (Figure 24). One of the biggest *A. davidbramwellii* I saw is doubtless a specimen I photographed near Tenagua (between Santa Cruz and Puntallana), whose leaves were 6cm wide and whose rosette had a diameter of 40cm (Figure 25).

In El Palmar, I noticed two other forms of *A. davidbramwellii*: few-branched plants with wide, pale leaves and short stems (Figure 26) grow side by side with extremely branched specimens made up of tens of tiny rosettes (1–4cm in diameter) with reddish leaves forming hemispheric shrublets (25cm high), like a



Figure 17: Fuente de Toro, Two different forms of *Aeonium davidbramwellii* growing side by side.



Figure 18: Volcanes de Teneguia, *Aeonium davidbramwellii*.

miniature *A. haworthii* or *A. decorum* (Figure 27). Very branched specimens can also be observed in Barranco de las Angustias (under Los Llanos), near Fuente de Toro and in Barranco del Jurado (Figure 28).

I am very uncertain as to how to explain such a degree of variability. Crosses between *A. davidbramwellii* and other aeoniums of La Palma are not rare, yet I find it difficult to believe that they have originated the whole range of intermediate forms growing on the island. It is more likely that the ancestor of present-day *A. davidbramwellii*, a plant belonging to the *A. urbicum* complex, was itself very variable and possibly of hybrid origin. Upon reaching La Palma, it spread throughout the island adapting itself to different environments and perhaps sometimes hybridizing with *A. arboreum* var.



Figure 19: Volcanes de Teneguia, *Aeonium davidbramwellii* facing the Atlantic Ocean.



Figure 20: Las Machuqueras, A pruinose form of *Aeonium davidbramwellii* with long leaves.

holochrysum or *A. spathulatum*. Be that as it may, *A. davidbramwellii* is a highly polymorphic species, which can give birth to miniature, shrubby specimens and to single-stemmed, large plants. In light of this situation, I wonder if we should consider *Aeonium calderense*, *Aeonium escobarii* and *Aeonium hierrense* (of La Palma) as distinct species, since they could simply be local forms of *Aeonium davidbramwellii* (for a similar conclusion, as far as *A. hierrense* is concerned, see STEPHENSON 2003: 128).



Figure 21: Barranco de Nogales, A large form of *Aeonium davidbramwellii*.

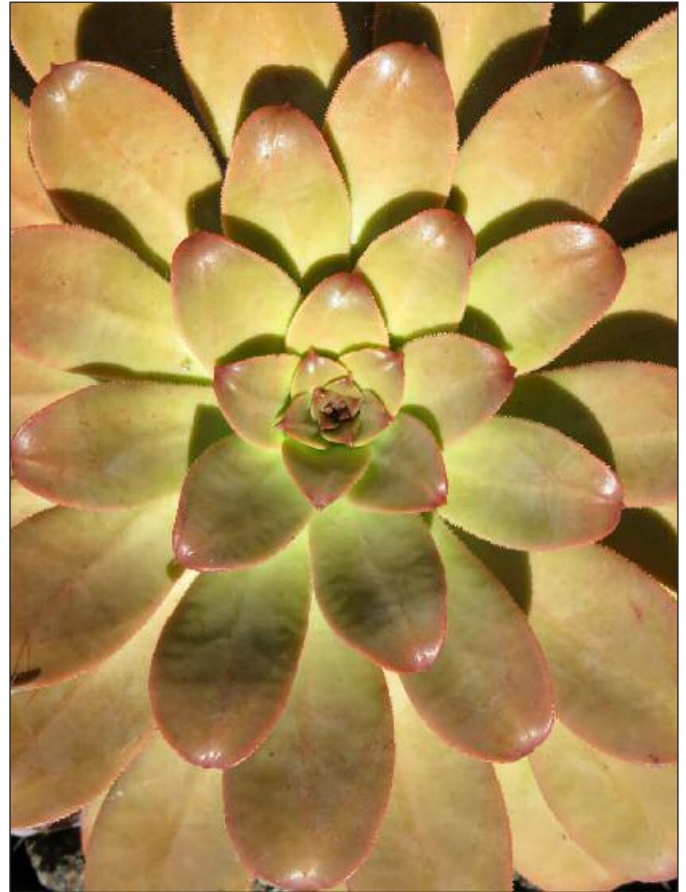


Figure 22: Tenagua, *Aeonium davidbramwellii*.



Figure 23: Don Pedro, A pruinose form of *Aeonium davidbramwellii*.

Aeonium goochiae

A small and densely branched shrublet up to 40cm high, *Aeonium goochiae* has thin, woody and tortuous stems and little rosettes of rhombic, pale green, pubescent and viscid leaves. It is endemic to La Palma and grows in the northern part of the island under trees, on stone walls, road embankments or damp, shaded slopes.



Figure 24: Las Manchas, Another pruinose form of *Aeonium davidbramwellii*.

Aeonium goochiae is not difficult to find if one walks on the path GR 130 from Garafia to Barlovento. Near El Palmar, there are many healthy specimens growing in the shade of *Euphorbia canariensis* and among rocks (Figures 29 & 30). A few of them still had inflorescences with flowers (Figure 31) at the beginning of August, although the majority was already spent. This species reminded me of *Aeonium*



Figure 25: Tenagua. A large form of *Aeonium davidbramwellii*.



Figure 26: El Palmar. A form of *Aeonium davidbramwellii* with wide, pale leaves and short stems.



Figure 27: El Palmar. A dwarf and very branched form of *Aeonium davidbramwellii*.



Figure 28: Barranco del Jurado. A branched form of *Aeonium davidbramwellii*.

lindleyi var. *lindleyi* of Tenerife, since both thrive on stone walls along paths and roads. Specimens in full sun were often quite dried up, with only a few leaves surviving, but plants growing in more shaded locations looked better (Figure 32). Walking from Garafia to Don Pedro, I was surprised to find plenty of *Aeonium goochiae* in El Valle de los Reyes, under the trees of the laurisilva, growing quite happily in the dappled shade of surrounding vegetation, sometimes on mossy rocks (Figure 33). Another good place to find *A. goochiae* is the path from Puntallana to Barranco de Nogales, in eastern La Palma, where this species is quite common on stone walls and rocks.

I noticed that the plants I saw in El Palmar were quite different from those growing in the laurisilva of El Valle de los Reyes or north of

Don Pedro. The former had shorter, thicker obovate leaves, whereas the latter had longer, thinner elliptical leaves. It would be interesting to find out whether these differences can be perpetuated in cultivation.

Aeonium nobile

Possibly the most famous aeonium endemic to La Palma, *Aeonium nobile* is a single-stemmed species bearing thick, obovate, yellowish-green to brownish-red leaves arranged in rosettes with a diameter up to 50–60cm. It was first described by Praeger only in 1925, due to the fact that it grows on vertical cliffs in a few locations scattered throughout the island.

The best place to start looking for *Aeonium nobile* is the (quite steep) path leading from Los Llanos to El Time, crossing Barranco de las



Figure 29: El Palmar, *Aeonium goochiae* growing under *Euphorbia canariensis*.

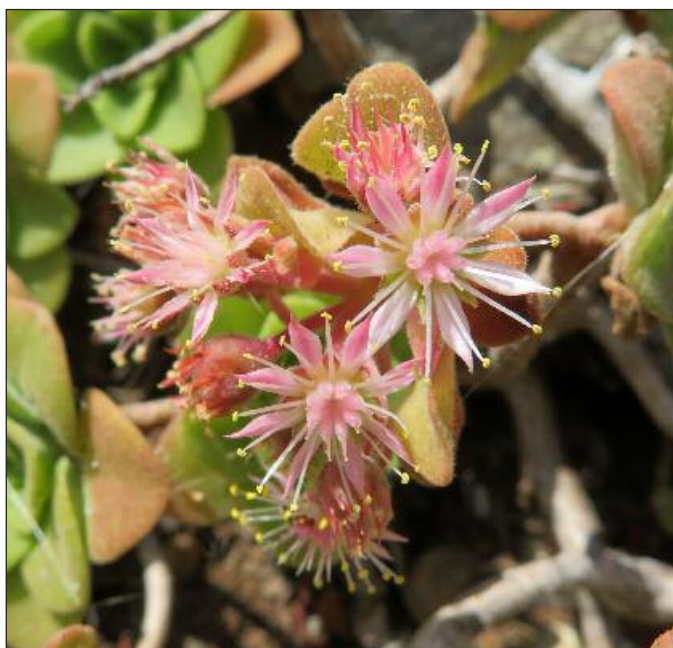


Figure 31: El Palmar, flowers of *Aeonium goochiae*.

Angustias (Figure 34). On the north-facing cliffs of the barranco, under Los Llanos, I was able to spot only two little specimens, but I found a large population across the barranco, at around 500m, growing together with *Aeonium sedifolium*



Figure 30: El Palmar, *Aeonium goochiae*.



Figure 32: El Palmar, *Aeonium goochiae* growing among rocks.

(Figure 35). Plants thrive on rocks and stone walls, as well as among dry grass (Figures 36 & 37). I saw plenty of dried inflorescences. These specimens of *A. nobile* show little variability: a few small plants have more rounded leaves (Figure 38), while others have almost triangular ones (Figure 39), but this difference is possibly due to soil and exposure to sunlight.

While on the bus (called *guagua* by the local



Figure 33: El Valle de los Reyes, *Aeonium goochiae* growing in the laurisilva.

people), I spotted a few specimens near Mirador El Time, before the parking place (coming from Los Llanos), but it is not advisable to stop and take a picture, since the road is quite narrow. It is better to admire the plants using Street View...

Aeonium nobile occurs also in the upper part of Barranco de las Angustias, from the parking El Campanario (at the beginning of the path towards Playa de Taburiente) until La Estrechura. I observed the succulent on both faces of the barranco, usually on steep slopes (Figure 40). On average, the plants were taller than those growing under El Time and they often showed a bare stem. Another healthy population of *A. nobile* can be found north of Santa Cruz, in Barranco Seco, along the path GR 130, on a south facing vertical cliff, around 150 m (Figure 41). The plants looked quite similar to those of upper Barranco de las Angustias, with bare stems.

Aeonium sedifolium

A miniature shrubby species, *Aeonium sedifolium* is usually less than 30–40cm high, but its rosettes of obovate, thick and very sticky leaves striped with red are easy to spot during the vegetative period, whereas they are almost entirely folded up in summer. *A. sedifolium* grows in Tenerife, La Palma and La Gomera on rocky outcrops, steep slopes and stone walls, from the sea level up to 1000m.

Aeonium sedifolium is a small species, not always easy to spot in summer, since the dormant rosettes are fairly small and tight. I was able to locate this species only in Barranco del



Figure 34: Barranco de las Angustias, seen from the path leading to El Time, with an *Aeonium nobile* in the foreground.

Jurado and in Barranco de las Angustias, along the path GR 130 (Figure 42). I found it first at the bottom of the barranco, around 100m, and then together with *A. nobile* at over 500m, where it becomes common among rocks and on stone walls (Figure 43). It occupies the same ecological niche of *A. goochiae* and *A. spathulatum*, yet it thrives in more exposed places than the other two species.

Aeonium spathulatum

Similar to *A. sedifolium*, but with obovate-spatulate, ciliate and not very succulent leaves, *Aeonium spathulatum* is often found in the pine forest zone, under the trees, on rocks and stone walls. During summer, its leaves are entirely folded up and the stems can sometimes be wholly bare. It grows on all the Canary Islands with the exception of Lanzarote and Fuerteventura.

I found *Aeonium spathulatum* in the south of the island, first east of Sabina Vieja and then along the path GR 130 from El Charco to Las Indias and Fuencaliente (between 700 and



Figure 35: Barranco de las Angustias, under El Time, *Aeonium nobile* growing with *A. sedifolium*.



Figure 36: Barranco de las Angustias, under El Time, *Aeonium nobile*.



Figure 37: Barranco de las Angustias, under El Time, *Aeonium nobile* (close-up).



Figure 38: Barranco de las Angustias, under El Time, young *Aeonium nobile* with rounded leaves.



Figure 39: Barranco de las Angustias, under El Time, *Aeonium nobile* with fairly triangular leaves.



Figure 40: Barranco de las Angustias, towards Caldera de Taburiente, *Aeonium nobile*.



Figure 41: Santa Cruz, Barranco Seco, *Aeonium nobile*.



Figure 42: Barranco de las Angustias, under El Time, *Aeonium sedifolium*.



Figure 43: Barranco de las Angustias, under El Time, *Aeonium sedifolium* (close-up).



Figure 44: Las Indias, *Aeonium spathulatum*.



Figure 45: El Charco, *Aeonium spathulatum*.



Figure 46: Near Fuencaliente. A more open *Aeonium spathulatum*.



Figure 47: Fuente de Toro, *Aeonium* × *junionae* (top left) and a paler *A.* × *junionae* (top right) with their parents, *Aeonium davidbramwellii* (bottom left) and *Aeonium canariense* var. *palmense* (bottom right).

900m), where it is quite common in the pine forest on stone walls and rocks (Figures 44 & 45). Most rosettes were little balls of tightly clasping leaves, but I noticed more open plants near Fuencaliente (Figure 46). The plants are only a few centimetres high in exposed places, but they can reach 40–50cm in sheltered spots. The shrubs of *A. spathulatum* I saw on La Palma were quite bigger than those I observed in El Hierro and La Gomera and the species seemed to me more widespread, since I was able to find only a few small populations in the other islands, whereas I observed plenty of specimens on La Palma, albeit only in the south-western part of the island.

Hybrids

Many *Aeonium* species hybridize freely in both habitat and cultivation, thus enabling horticulturists to create plenty of attractive

hybrids, but making it quite difficult for botanists to classify specimens which show intermediate features. It is possible – and even likely – that quite a few *Aeonium* species are of hybrid origin, whereas plants commonly regarded as hybrids could be considered as new species which are slowly beginning to occupy an ecological niche where both parents are unable to grow well.

La Palma, with its (at least) eight species of *Aeonium* often sharing the same habitat, hosts quite a few natural hybrids. During my stay there, I was able to spot plants which possibly belong to five different nothotaxa.

Aeonium × *junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*)

Grown plants of *Aeonium* × *junionae* are quite easy to identify, since *Aeonium canariense* var. *palmense* has almost always short stems which



Figure 48: Western Barranco de los Gómeros, possibly a different form of *Aeonium* × *junionae*.

are entirely covered with dried leaves, whereas *Aeonium davidbramwellii* has long, bare stems and glabrous leaves. Specimens with bare stems and pubescent leaves, often showing intermediate features between the two above-mentioned species, are likely to be *A. × junionae*, especially if they grow in an area where both parents are to be found. I spotted a population of this hybrid behind Fuente de Toro, along the path GR 130. There were quite a few subshrubs with long, bare stems (like *A. davidbramwellii*) and pubescent leaves (like *A. canariense* var. *palmense*). I noticed that a specimen had paler leaves, perhaps due to the fact that one of its parents was a pale, pruinose form of *A. davidbramwellii* (Figure 47).

In the western Barranco de los Gómeros, I found a group of plants which puzzled me. They grow in clusters and are at first sight quite similar to *A. canariense* var. *palmense* (e.g. they have very short stems covered with dried

leaves), but their leaves are glabrous, not at all pubescent (Figure 48). I do not think that they can be a cross with *A. arboreum* var. *holochrysum*; it seems to me more likely that they are just a different form of *Aeonium* × *junionae*.

Aeonium × *kunkelii* (*A. arboreum* var. *holochrysum* × *A. davidbramwellii*)

I saw plants which could be identified as *Aeonium* × *kunkelii* in Barranco de las Angustias, under Los Llanos (Figure 49), and in La Punta. These shrubs were very similar to *A. arboreum* var. *holochrysum*, but a little smaller; the rosettes were different, lacking tightly packed leaves striped with red and showing the usual foliage of *A. davidbramwellii*. I cannot rule out completely the possibility that these specimens are just another extreme form of *A. davidbramwellii*, but neighbouring plants of this species were shorter.



Figure 49: Barranco de las Angustias, under Los Llanos, possibly *Aeonium* × *kunkelii*.

Aeonium × *robustum* (*A. davidbramwellii* × *A. nobile*)

During my stay in La Palma, I spotted more than once plants showing features which were intermediate between those of *A. davidbramwellii* and *A. nobile*, although they looked quite different from each other. In Barranco de las Angustias, under Los Llanos, I saw a plant which reminded me of *A. haworthii*: a shrublet 20–25cm tall with rosettes of lanceolate, yellowish leaves (Figure 50), growing side by side with the normal *A. davidbramwellii*. A cross with *A. canariense* or *A. arboreum* is not likely and I never saw forms of *A. davidbramwellii* showing similar features, therefore I think that it was *Aeonium* × *robustum*. I noticed similar plants, but with reddish leaves, in Barranco Seco, north of Santa Cruz (Figure 50).

Aeonium × *timense* (*A. canariense* var. *palmense* × *A. nobile*)

Walking towards Playa de Taburiente, shortly before La Estrechura, I spotted an unusual plant growing between an *Aeonium nobile* and a few *Aeonium canariense* var. *palmense*, possibly a cross between them (*Aeonium* × *timense*). If this identification is correct, the hybrid is quite taller than its parents, with longer and paler leaves (Figure 51).

Aeonium × *wildpretii* (*A. arboreum* var. *holochrysum* × *A. canariense* var. *palmense*)

I found only once a specimen which could be considered as a cross between *A. arboreum* var. *holochrysum* and *A. canariense* var. *palmense*. Near Puntallana, I spotted a plant with pubescent leaves striped with red (Figure 52). Since its rosette is more open than the rosettes of neighbouring *A. canariense* var. *palmense* and that *A. arboreum* var. *holochrysum* grows along the path after a few meters, the specimen I found can be considered as a cross between



Figure 50: *Aeonium* × *robustum* in Barranco de las Angustias, under Los Llanos (top), and near Santa Cruz, in Barranco Seco (bottom).

them, namely *Aeonium* × *wildpretii*.

Acknowledgments

I would like to thank Ray Stephenson and Massimo Afferni, who kindly shared with me their notes on the *Crassulaceae* of La Palma. Thanks are also due to the library of the Bibliothek am Botanischen Garten und Botanischen Museum Berlin and the Freie Universität Berlin, which enabled me to read a few 'elusive' articles and monographs about the succulent flora of La Palma.

Bibliography

- BAÑARES BAUDET, A. (2015). *Las plantas suculentas (Crassulaceae) endémicas de las Islas Canarias*. Santa Cruz de Tenerife.
- BORGMANN, W. & BRANDT, TH. (2018). *Zwischen Drachenbäumen und Vulkanen. Sukkulenten der Kanarischen Inseln*. Adelsdorf.
- CARBONELL, E. (2007). *Cuadernos de succulencia*,

Barcelona.

- LIU, H.Y. (1989). *Systematics of Aeonium (Crassulaceae)*. Taichung (Taiwan).
- LODÉ, J. (2010). *Plantas Suculentas de las Islas Canarias*, Santa Cruz de Tenerife.
- MOTTRAM, R. (2015). *Aeonium* nothospecies. *Crassulacea* 4: 1–43.
- NYFFELER, R. (2003). *Aeonium*, in U. EGGLI (ED.), *Illustrated Handbook of Succulent Plants: Crassulaceae*. Berlin, pp. 15–23.
- PRAEGER, L.R. (1925). Notes on Canarian and Madeiran *Semperviva*. *Transactions and Proceedings of the Botanical Society of Edinburgh* 29: 199–217.
- SANTOS GUERRA, A. (1983). *Vegetación y Flora de La Palma*, Santa Cruz de Tenerife.
- SCHULZ, R. (2007). *Aeonium in habitat and cultivation*. San Bruno (California).
- STEPHENSON, R. (2003). Differentiating *Aeonium* species in La Palma, Canary Islands. *British Cactus & Succulent Journal* 21: 123–131.



Aeonium nobile

Aeonium × *timense*

Aeonium canariense
var.
palmense

Figure 51: Barranco de las Angustias, path towards Caldera de Taburiente, *Aeonium* × *timense*.

Appendix 1

Selected locations of *Aeonium* species growing in La Palma

In the following appendices, I indicate the position of most *Aeonium* species and hybrids which I observed in La Palma. Of course, I make no claim to completeness; these data refer exclusively to the parts of the island which I visited in August, 2019.

Western La Palma

Barranco del Jurado: *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense* (very widespread), *Aeonium davidbramwellii*, *Aeonium goochiae*, *Aeonium nobile* (only one specimen on the northern cliffs of the barranco, south facing, near the highway LP-1), *Aeonium sedifolium*; possibly *Aeonium* × *junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*).

Fuente del Toro (over Los Gomeros): *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii*, *Aeonium goochiae* (on the other side of the highway LP-1, along the path GR 130, on stone walls); possibly *Aeonium* × *junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*).

Barranco de los Gomeros: *Aeonium arboreum* var. *holochrysum*, *Aeonium aureum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii*; possibly *Aeonium* × *junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*).

Over La Punta (along the path GR 130): *Aeonium arboreum* var. *holochrysum*, *Aeonium aureum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii*.

El Time: *Aeonium nobile* (along the highway LP-1, shortly before the Mirador del Time



Figure 52: Puntallana, *Aeonium* × *wildpretii* (top) with its parents, *A. canariense* var. *palmense* (bottom left) and *A. arboreum* var. *holochrysum* (bottom right).

coming from Los Llanos, on steep slopes)

Barranco de las Angustias (along the path GR 130): *Aeonium arboreum* var. *holochrysum*, *Aeonium davidbramwellii* (highly polymorphic), *Aeonium canariense* var. *palmense*, *Aeonium nobile* (only two specimens facing north-west, on the southern face of the barranco; quite widespread on the northern face of the barranco, facing south-east, over 500 m), *Aeonium sedifolium* (on the bottom of the barranco, around 100 m, and over 500m, together with *A. nobile*); possibly *Aeonium* × *kunkelii* (*A. arboreum* var. *holochrysum* × *A. davidbramwellii*), *Aeonium* × *junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*) and *Aeonium* × *robustum* (*A. canariense* var. *palmense* × *A. nobile*).

Barranco de las Angustias – Caldera de Taburiente (from Lomo de los Caballos to

Playa de Taburiente): *Aeonium aureum* (single specimen shortly after the parking place, on the path PR 13, around 300m), *Aeonium canariense* var. *palmense* (common), *Aeonium davidbramwellii*, *Aeonium nobile* (quite common on the cliffs of the barranco, from shortly after the parking, around 300m, until La Estrechura), possibly *Aeonium* × *robustum* (*A. davidbramwellii* × *A. nobile*) and *Aeonium* × *timense* (*A. canariense* var. *palmense* × *A. nobile*).

Los Llanos (along the path GR 130 towards Fuencaliente): *Aeonium arboreum* var. *holochrysum*, *A. davidbramwellii*.

Las Manchas: *Aeonium davidbramwellii* (quite pruinose specimens).

Sabina Vieja: *Aeonium spathulatum* (path from the highway LP-2 to the path GR 130, 650–600m).

Southern La Palma

El Charco – Las Indias: *Aeonium spathulatum* (from 860–880m, common on stone walls along the path GR 130).

Fuencaliente (Fuencaliente - Volcán Teneguia – Montaña Mago – Las Machuqueras – Llano del Tanque – Fuencaliente): *Aeonium arboreum* var. *holochrysum*, *Aeonium davidbramwellii* (highly polymorphic).

Eastern La Palma

Risco de la Concepción: *Aeonium arboreum* var. *holochrysum*, *Aeonium davidbramwellii* (many well-developed and single-stemmed specimens).

Santa Cruz: *Aeonium nobile* (single specimen on a sheer cliff in front of Playa de Bajamar, shortly before the tank station – going towards Santa Cruz).

Barranco de Juan Major: *Aeonium goochiae*, *Aeonium canariense* var. *palmense*.

Barranco Quintero (near LP-101): *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii*.

Barranco de la Madera: *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense* (common), *Aeonium davidbramwellii*.

Between Barranco de los Gomer and Barranco Seco (along the highway LP-1): *Aeonium davidbramwellii*, *Aeonium nobile*.

Barranco Seco: *Aeonium davidbramwellii*, *Aeonium nobile* (healthy population on the eastern face of the barranco, around 150–200m, halfway up the steep slope leading towards Tenagua, along the path GR 130), possibly *Aeonium × robustum* (*A. davidbramwellii* × *A. nobile*), both on the bottom of the barranco and on the upper northern cliffs.

Tenagua: *Aeonium davidbramwellii* (many well-developed and single-stemmed specimens).

Barranco del Agua: *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii*, *Aeonium goochiae*, possibly *Aeonium × junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*).

Puntallana (going north along the path GR 130): *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii* (common), *Aeonium goochiae* (growing along the path on rocks or stone walls, often in sheltered positions), possibly *Aeonium × wildpretii* (*A. arboreum* var. *holochrysum* × *A. canariense* var. *palmense*).

Barranco de Nogales: *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii*, *Aeonium goochiae* (widespread); possibly *Aeonium × junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*) on the bottom of the barranco and on its northern face.

La Galga (road from San Bartolo to La Galga): *Aeonium goochiae* (widespread).

Northern La Palma

Road between Don Pedro and the highway LP-1: *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense*, *Aeonium davidbramwellii* (common over 650m), *Aeonium goochiae* (common until 650m, then a few shrubs in the laurisilva).

El Valle de los Reyes: *Aeonium canariense* var. *palmense*, *Aeonium goochiae* (common in the laurisilva).

El Palmar – Las Cabezadas (along the path GR 130): *Aeonium arboreum* var. *holochrysum*, *Aeonium canariense* var. *palmense* (widespread in Barranco del Mudo), *Aeonium davidbramwellii*, *Aeonium goochiae* (common on stone walls and in Barranco del Mudo), possibly *Aeonium × junionae* (*A. canariense* var. *palmense* × *A. davidbramwellii*).

Barranco de la Luz: *Aeonium arboreum* var. *holochrysum*, *Aeonium aureum*, *Aeonium*

dauidbramwellii, *Aeonium goochiae*.

Santo Domingo de Garafía: *Aeonium arboreum* var. *holochrysum*, *Aeonium aureum* (along the road LP-114 near the town), *Aeonium canariense* var. *palmense*, *Aeonium dauidbramwellii*.

Cueva del Agua (along the road LP-114): *Aeonium aureum*, *Aeonium canariense* var. *palmense*, *Aeonium dauidbramwellii*.

Appendix 2

Aeonium species growing on La Palma

Aeonium arboreum var. *holochrysum* (widespread throughout the island): Barranco del Jurado, Fuente del Toro (over Los Gomeros), Barranco de los Gomeros, over La Punta (along the path GR 130), Barranco de las Angustias (along the path GR 130), Los Llanos (along the path GR 130 towards Fuencaliente), Fuencaliente (Fuencaliente - Volcán Teneguía - Montaña Mago - Las Machuqueras - Llano del Tanque - Fuencaliente), Risco de la Concepción, Barranco de la Madera, Barranco del Agua, Puntallana (going north along the path GR 130), Barranco de Nogales, road between Don Pedro and the highway LP-1, El Palmar - Las Cabezadas (along the path GR 130), Barranco de la Luz, Santo Domingo de Garafía.

Aeonium aureum: over La Punta (along the path GR 130), Barranco de las Angustias - Caldera de Taburiente (single specimen shortly after the parking, on the path PR 13, around 300 m), Barranco de los Gomeros (western La Palma), Barranco de la Luz, Santo Domingo de Garafía (along the road LP-114 near the town), Cueva del Agua (along the road LP-114).

Aeonium canariense var. *palmense*: Barranco del Jurado (common), Fuente del Toro (over Los Gomeros), Barranco de los Gomeros, over La Punta (along the path GR 130), Barranco de las Angustias (along the path GR 130), Barranco de las Angustias - Caldera de Taburiente (common from Lomo de los

Caballos to Playa de Taburiente), Barranco de Juan Major, Barranco Quintero (near the road LP-101), Barranco de la Madera (common), Barranco del Agua, Puntallana (going north along the path GR 130), Barranco de Nogales, road between Don Pedro and the highway LP-1, El Valle de los Reyes, El Palmar - Las Cabezadas (along the path GR 130, widespread in Barranco del Mudo), Santo Domingo de Garafía, Cueva del Agua (along the road LP-114).

Aeonium dauidbramwellii (widespread throughout the island): Barranco del Jurado, Fuente del Toro (over Los Gomeros), Barranco de los Gomeros, over La Punta (along the path GR 130), Barranco de las Angustias (along the path GR 130, highly polymorphic), Barranco de las Angustias (along the path GR 130), Barranco de las Angustias - Caldera de Taburiente (from Lomo de los Caballos to Playa de Taburiente), Los Llanos (along the path GR 130 towards Fuencaliente), Las Manchas (very pruinose specimens), Fuencaliente (Fuencaliente - Volcán Teneguía - Montaña Mago - Las Machuqueras - Llano del Tanque - Fuencaliente; highly polymorphic), Risco de la Concepción (many well-developed and single-stemmed specimens), Barranco Quintero (near LP-101), Barranco de la Madera, between Barranco de los Gomeros and Barranco Seco (along the highway LP-1), Barranco Seco, Tenagua (many well-developed and single-stemmed specimens), Barranco del Agua, Puntallana (common going North along the path GR 130), Barranco de Nogales, road between Don Pedro and the highway LP-1 (common over 650), El Palmar - Las Cabezadas (along the path GR 130), Barranco de la Luz, Cueva del Agua (along the road LP-114).

Aeonium goochiae: Barranco del Jurado, Fuente de Toro (over Los Gomeros, on the other side of the highway LP-1, along the path GR 130, on stone walls), Barranco de Juan Major, Barranco del Agua, Puntallana (it grows along the path GR 130 on rocks or stone walls, often in sheltered positions), Barranco de

Nogales (widespread), La Galga (widespread along the road from San Bartolo to La Galga), road between Don Pedro and the highway LP-1 (common until 650 m, then a few shrubs in the laurisilva), El Valle de los Reyes (common under the laurisilva), El Palmar – Las Cabezas (along the path GR 130, common on stone walls and in Barranco del Mudo), Barranco de la Luz.

Aeonium nobile: Barranco del Jurado (only one specimen on the northern face of the barranco, south facing, near the highway LP-1), along the highway LP-1, shortly before the Mirador del Time coming from Los Llanos, Barranco de las Angustias (only two specimens facing north-west, on the southern face of the barranco; quite widespread on the northern face of the barranco, facing south-east, over 500m), Barranco de las Angustias – Caldera de Taburiente (quite common on the cliffs of the barranco, from shortly after the parking, around 300m, until La Estrechura), Santa Cruz (single specimen on a sheer cliff in front of Playa de Bajamar, shortly before the tank station – going towards Santa Cruz), between Barranco de los Gomeros and Barranco Seco (along the highway LP-1), Barranco Seco (healthy population on the eastern face of the barranco, around 150–200m, halfway up the steep slope leading towards Tenagua, along the path GR 130).

Aeonium sedifolium: Barranco del Jurado, Barranco de las Angustias (along the path GR 130, on the bottom of the barranco, around 100m, and over 500m, together with *A. nobile*).

Aeonium spathulatum: Sabina Vieja (path leading from the highway LP-2 to the path GR 130, 650–600m), El Charco – Las Indias (from 860–88 m, common on stone walls along the path GR 130).

Hybrids

Aeonium × junionae (*A. canariense* var. *palmense* × *A. davidbramwellii*): western Barranco de los Gomeros, Fuente de Toro, Barranco del Jurado, Barranco de las Angustias (along the



path GR 130), Barranco del Agua, Barranco de Nogales (on the bottom of the barranco and on its northern face), El Palmar – Las Cabezas (along the path GR 130).

Aeonium × kunkelii (*A. arboreum* var. *holochrysum* × *A. davidbramwellii*): Barranco de las Angustias (along the path GR 130).

Aeonium × robustum (*A. davidbramwellii* × *A. nobile*): Barranco de las Angustias under Los Llanos, Barranco Seco (both on the bottom of the barranco and on its upper northern face).

Aeonium × timense (*A. canariense* var. *palmense* × *A. nobile*): Barranco de las Angustias – Caldera de Taburiente

Aeonium × wildpretii (*A. arboreum* var. *holochrysum* × *A. canariense* var. *palmense*): Puntallana (going north along the path GR 130).



**Appendix 3:
Distribution maps of *Aeonium* species
growing on La Palma**

I pinpointed the exact location of most *Aeonium* specimens I observed on La Palma by using the Google app *My Maps* and then uploading the data thus obtained on a Google Earth map of the island. I am prepared to share the exact coordinates upon request.

[Marco Cristini](#)

SOCIETY PAGES

British Cactus & Succulent Society

Website: <http://www.bcsc.org.uk>

Charity no. 290786



Further details available from our

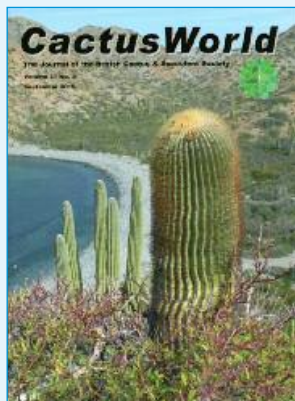
Membership Secretary:

Mr A Morris,
6 Castlemaine Drive,
Hinckley, Leicester,
LE10 1RY UK.

Tel: +44(0)1455 614410.

Email:

membership@bcsc.org.uk



- Quarterly full colour Journal, *CactusWorld*, for all levels of interest, covering conservation, cultivation, propagation, plant hunting and habitats, botanical gardens, plant descriptions, book reviews, seed lists, news and views, and advertisements from suppliers worldwide.
- Optional subscription to *Bradleya*, a high quality annual publication, with articles of a more scientific nature.
- Annual distribution of seeds.
- Online discussion Forum and publications including books.
- See our [website](http://www.bcsc.org.uk) for current subscription details, which can be paid online by credit card, PayPal or by cheque payable to BCSS.

The German Echinocereus Society

Published 4 times per year since 1988.

Well produced with good colour pictures

English summaries.

Also available is a series of separate books about particular groups of *Echinocereus*.

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



Cactus & Succulent Society of America

Promoting succulent horticulture and discovery since 1929

- Cactus and Succulent Journal
- To The Point Newsletter
- Annual Show and Sale
- Seed Depot
- Biennial Convention
- Expert-guided Tours
- 80 Local Affiliates

Become a Member

www.cssainc.org

CSSA, P.O. Box 1000, Claremont, CA 91711

Deutsche Kakteen-Gesellschaft German Cactus Society



Monthly journal, high quality printing, format 17 x 24cm, 352 pages per year, plus 24 plant gallery pull-outs.

Kakteen und andere Sukkulenten

Each full colour volume of over 50 pages features articles on all aspects of cacti and other succulents.

Annual subscription: 35€.

Requests for sample copies/information/registration to:
Deutsche Kakteen-Gesellschaft e.V.
Bachstelzenweg 9
91325 Adelsdorf, Germany
Tel. +49 91 95-998 0381
Fax +49 91 95-998 0382
E-mail: gs@dkg.eu
Web: www.dkg.eu

The German Mammillaria Society

Produced to a high standard and published 4 times per year since 1977.

Articles in English as well as German.



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

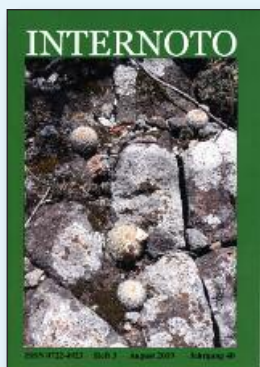
The Sedum Society



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

Internoto

The specialist society for the study of Notocactus. (German with English summaries)
 A well-produced journal published 4 times per year since 1980.
<http://www.internoto.de>



INTERNATIONAL SANSEVIERIA SOCIETY

Learn about the enormous variety of Sansevierias and how to grow them by joining the INTERNATIONAL SANSEVIERIA SOCIETY. We have members worldwide and produce a full colour journal three times per subscription year. The journal also covers the related Dracaena.

Subscription £25 or €28 per year (UK and other EU countries), £29 or US\$46 for airmail delivery outside of Europe. For further details write to: Alan Butler, via della Campana 7, 00048 Nettuno (RM), Italy or e-mail alan-brook-side@hotmail.com. You can also subscribe on line at www.sansevieria-international.org where you can also find a list of our local representatives.



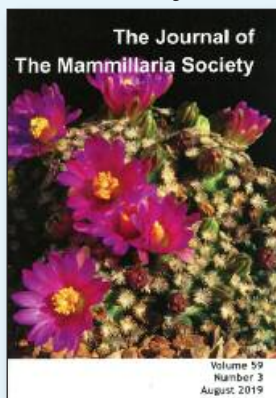
The Mammillaria Society

The UK-based specialist society for the study of *Mammillaria* and allied genera.

[Back issues on DVD](#)

4 issues per year, seed list and meetings.

<http://www.mammillaria.net>



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://www.cactusexplorers.com)

An annual meeting is also held.

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>

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>

Mesemb Study Group

Founded in 1986.

Encourages the study of plants belonging to the *Mesembryanthemaceae*.

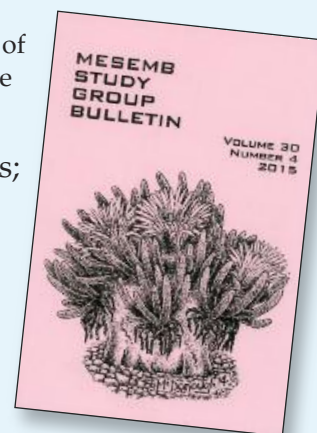
Quarterly Bulletins; back numbers available. Comprehensive Index.

Annual seed list.

£12 for UK
 £15 for Europe
 £21 for airmail

Email: msg@mesemb.org

For more information visit the [MSG website](http://www.mesemb.org)



Interessengemeinschaft Epiphytische Kakteen (EPIG)

Specialized in epiphytic cacti, both species and hybrids

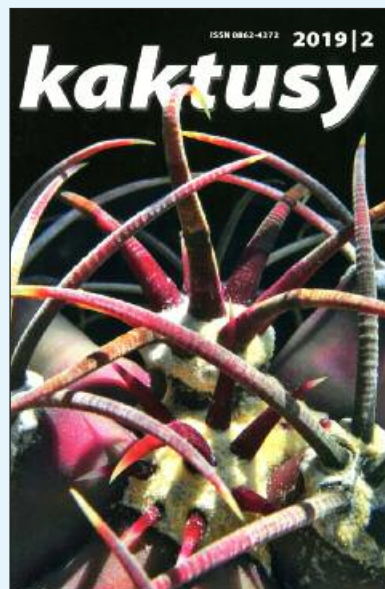


- Full-coloured German-language Journal
- Articles with comprehensive English abstracts
- Published twice a year
- Annual convention with lectures, visits to Botanical Gardens and nurseries, plant auction
- Annual seed distribution within the EU
- Online discussion forum on [Facebook](#)

Become a Member

Contact Mrs. Kirsten Pfeiffer pfeiffer.epig@gmx.de

www.epig.org



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/>

INTERNATIONAL ASCLEPIAD SOCIETY

The INTERNATIONAL ASCLEPIAD SOCIETY is for all those interested in the Asclepiads and all members of the Apocynaceae family, particularly the succulent species. Asklepios journal 3 times a year, seed lists, meetings, CDs
 SUBSCRIPTION: £17 (€20) per year for the UK and other European countries, £21 (US\$33) for airmail outside Europe.

Write to: Tim Marshall, 17 High Street, Wighton, Wells-next-the-Sea, Norfolk NR23 1AL, UK
plantsman@tiscali.co.uk
 Or e-mail: alan-brook-side@hotmail.com
 Or visit our web site: www.asclepiad-international.org for on-line subscription or details of local representatives.



Euphorbia

Cultivation, plants in habitat, new species!
 Keep updated!

Join the International Euphorbia Society.

Receive 3 full colour A4 magazines of Euphorbia World per year.

Visit our website www.euphorbia-international.org with sample articles, hints on cultivation, picture gallery and additional texts.

Join via paypal online payment, download your membership application form or contact our Membership Administrator:



International Euphorbia Society

Bob Potter
 20, Inglewood
 Woking, Surrey
 GU21 3HX - UK
bbpotter@woking.plus.com



www.euphorbia-international.org

A.I.A.S.

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@aias.info.



Join the Fachgesellschaft andere Sukkulenten e.V. (FGaS)

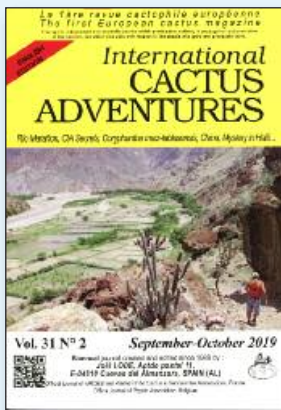
- **Oldest society** dedicated to all the other succulents (except cacti) in the world
- Aim: improve **knowledge** about other succulents
- **Quarterly** mainly **bilingual** (German – English) **member journal** "Avonia", 64 pages, A4 format, with numerous colour pictures, included in the membership fee of 40 € (German inhabitants 35 €)
- **Annual meeting** with two-day conference with world-renowned experts and extensive plant stock market
- **Communities of interest** to special plant groups such as „Euphorbia“, „Mesembs“, „Aloaceae“, „Yucca“ and others with independent activities
- **Seed exchange** provides a substantial seed offer from member donations to members. The seed list will be sent to the members at the beginning of the year. Further information about the FGaS and its facilities can also be found on the Internet at www.fgas-sukkulenten.de.

Request sample issue of Avonia for free!

Contact person:

Office: Eberhard Seiler, D-04626 Thonhausen, Dorfstr. 73, Tel. +49 3762 47985, E-Mail: geschaeftsstelle@fgas-sukkulenten.de

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



International Cactus Adventures

This issue 31(2) will be the last published.

<http://www.cactus-adventures.com>

Journal of Slovakia

Well-produced with good quality pictures, issues are published four times a year since 1991.

Usually 40 pages per issue.

Cost of a year's issues including postage about £35.



„Gymnocalycium“ Magazine now out also in English



This magazine already exists for 25 years and is internationally recognised. Its printing is of a technologically high standard on good quality paper. It appears 4-5 times a year. To accommodate collectors the issues are presented in loose leaf form.

Subscription to „Gymnocalycium“:

Payment of the yearly dues now EURO € 35,- (for European members) or EURO 40,- (for members outside Europe) include postage (yearly) by cash or postal money order to

Postscheckkonto 93025906
Code word: AGG
BLZ: 60 000
IBAN: AT 146 0000000 9302 5906
BIC: OPSKATWW

makes you a subscriber.

For further information please contact

Mr. Helmut Amerhauser
Bahnweg 12
A-5301 Eugendorf
E-mail: [> dha.gymno@aon.at <](mailto:dha.gymno@aon.at)

See our website for information:
<http://www.gymnocalycium.at>

The Haworthia Society

The International Society
for the study of
Haworthias, Gasterias, Aloes,
Bulbines and other related
South African plants

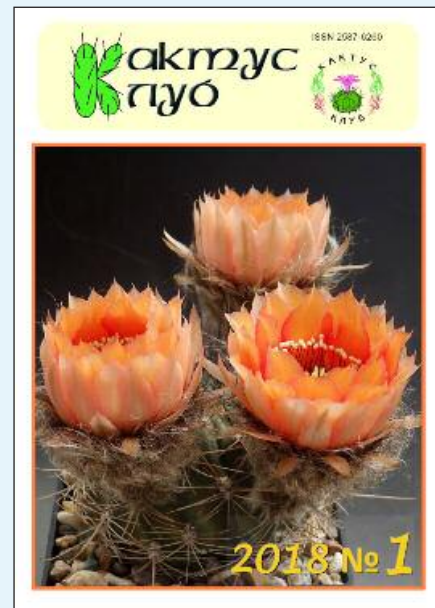


3 Journals per year, Biennial Convention,
National Show, Seed List,
Special Publications
UK £14, Europe £15, Rest of the World £17
Membership enquiries: Dr Tony Roberts
email: tony@robertscacti.co.uk

www.haworthia.org

Kaktus Klub

A new online version of the
Russian journal *Kaktus Klub* is now
available as a free download.



This is a very well produced journal with
excellent pictures. The text is mainly in
Russian but there are summaries in English
You can download all the issues from
<http://www.kaktusklub.com/htmls/e-journal.html>

Opuntia Web.



This website about the opuntias of
the USA has been redone and is better
than ever. There are 1,500 photographs
of the various species in habitat.

Opuntia and related species (= opun-
tiads) are unique cacti with unusual
shapes and beautiful flowers. Common
in parts of the United States and Mex-
ico; they also occur throughout most of
the Americas. There are over 50 species
of opuntians in the United States and
many more in Mexico. Opuntia Web
describes opuntias of the United States.

www.opuntiads.com

PLANTS AND SEEDS FOR SALE

Your place to advertise spare plants, seeds, journals, books etc. FREE!

Entries are free so please send [me](#) the text of your advert which can include links to a web page or an on-line document.



It's time to buy seeds!

Seeds from Aymeric de Barmon (The picture above is his glasshouse)

ADBLPS produces more than 75% of the seeds offered, mostly cacti. Greenhouses and processes are designed to ensure production of pure seeds. The year of harvest and specific information are provided for more than 2000 items. Look at <http://www.adblps-graines-cactus.com>

Many germination rates from customers are available at <http://www.semeurs-de-cactus.fr>



Seeds from South America

www.gymnos.de

Greatest selection of cactus seeds from the Chaco in Paraguay, Bolivia, Argentina and Brazil.

Volker Schädlich

volker@gymnos.de

Seeds of Chilean Cacti

Collected in habitat or in my collection.
Visit our website to download our lists:
<http://www.cactusalvaralto.com/nosotros/>

If you are in Chile, you are welcome to visit my collection by appointment.

Ingrid Schaub, Olmué, Chile
email: ricardokeym@gmail.com

Seeds from Ralf Hillmann



New seed list available in December.
All seeds are from habitat source or pollinated in my own collection.
Specialising in *Aylosteria*, *Mediolobivia*, *Rebutia*, *Sulcorebutia*, *Lobivia*, *Echinopsis*, *Gymnocalycium*, *Notocactus*, *Cereoids*, *Opuntiae*, *Mesembs*, *Puya*, *Crassulaceae* etc.
For more information please contact sulcohilli@gmx.ch

A comprehensive list of seeds from the Czech Republic:

<http://www.cactus-hobby.eu>

An extensive seed list from Prochazka, strong on Mexican cacti:

<http://www.kaktusy.com>

The new offer of the seeds (mostly with locality data) is available from Jan Jecminek on his website:

www.cactus-succulent.com

Lifestyle Seeds

Supplier of South African seeds
Succulents, caudiciform plants and bulbs.
Web: <http://www.lifestyleseeds.co.za>
email: info@lifestyleseeds.co.za

František Nechvil Seeds

I offer cactus seeds of first-rate quality, all from my own collection.
Go to my [website](#) to see this extensive offering of seeds from Czech republic.

Pavel Pavlicek

New seed list for 2015/2016

<http://www.cact.cz/semena-seeds-prodej-a15>
Plants offer: <http://www.cact.cz/nabidka-rostlin-jaro-2014-a16>

SuccSeed



Order from our online shop with 3000 varieties
>300 Lobivia, >250 Eriosyce & Copiapoa, >450 Rebutia
www.succseed.com

Bercht Seed List

Already familiar to many of you, for others a voyage of discovery. Many seeds you are looking for can be found in this seed list. A large number of the seeds is provided with well known and reliable habitat information or with a field number.

The list specialises in South American cacti such as *Acanthocalycium*, *Echinopsis*, *Frailea*, *Lobivia*, *Mediolobivia*, *Notocactus*, *Rebutia*, *Sulcorebutia*, *Weingartia* and *Wigginsia*, but above all an almost complete selection of *Gymnocalycium*. Furthermore, you can also find many seeds of North American cacti in this list.

www.bercht-cactus.nl

Mesa Garden

P.O. Box 72, Belen, New Mexico, USA

Large list of Cactus and Succulent seeds, particularly strong on Mexican and U.S.

Now under the new management of Aaron and Tarah Morerod.

Note the new email address

<http://www.mesagarden.com>
email: mesagarden@swcp.com

Mondocactus Mature Choice Cacti



Mondocactus produces succulent plants belonging to rare, threatened and endangered species. Many of the plants are provided with detailed information regarding their natural origin.

Mondocactus is the virtual store of De Rerum Natura Nursery, for the sale of rare and not so rare succulent plants since 2013 in San Lazzaro di Savena (Bologna, Italy). See the website, also in English:

<http://www.mondocactus.com>



Online shop for Cacti, Succulents and other Exotic plants. We offer a good range of plants, seeds and accessories.

email: info@cactusplaza.com
<http://www.cactusplaza.com>



Plants, Books and Accessories
Excellent web site and catalogue

www.kuentz.com

Ets. Kuentz - 327 rue du Général Brosset -
83600 Fréjus - FRANCE

Echinocereus Online Services Echinocereus Online Shop

www.echinocereus.biz

Seeds Martina & Andreas Ohr
Books Ackerstrasse 30
Calendars D 90574 Rosstal, Germany
Plants Phone: +49 (9127) 577388
Fax: +49 (9127) 577399
email: versandhandel@echinocereus.biz

SEEDLIST of 325 forms of Echinocereus

Wholesale requests welcome – Online Shop in German and English – Easy PayPal Payment or Bank transfer – Special discounts on Book Sets

Echinocereus Duke Benadom
€63.90 plus shipping

The Amazing Flowers of Echinocereus dasyacanthus
M & A Ohr €36.90 plus shipping

The Brilliant Echinocereus of Orogrande M & A Ohr
€19.90 plus shipping

Echinocereus Online Web

www.echinocereus.de

The Genus – Culture – Habitat – Field Numbers –
News – Echinocereus Index – Literature – Publications
– Links – Geo information – Herbarium –
Supplementary information

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

Seedlings of Rare Cacti



Rare cacti and succulents.
Grown outdoors almost all year round in our Italian nursery.
Visit our [website](http://www.big-cactus.com) with many good pictures.
(also English language)
Mail order only.

aristocacti – David Quail



Slow-growing cacti from Mexico and SW USA

Ariocarpus, Aztekium, Geohintonia, Strombocactus, Encephalocarpus, Turbinicarpus, Obregonia and more.



All seed-raised by me in UK on their own roots.

Visitors welcome by appointment.

To enquire, email: de.quail@virgin.net

Richard and Wendy Edginton

The Nurseries, Station Road, Flordon,
Norwich, Norfolk, NR15 1QR UK

We stock a wide range of cacti from North and South America, raised from seed at our nursery. Send a stamped addressed envelope for our list or

Visitors welcome by appointment- just telephone +44 (0)1508 470153 or [email](mailto:us) us.



Cactus Shop (formerly Westfield Cacti) have been growing and trading in cacti & other succulents since 1979 and guarantee speedy delivery of top class plants

All plants have been grown from seed or cuttings in cultivation. Please note that we have just moved to Devon. <http://www.cactusshop.co.uk>

WILLIAM'S CACTUS

Quality grown rare cacti/succulents
Craig & Henry Barber

11, Brookside Terrace, South Elmsall,
Pontefract, W. Yorks WF9 2RS England
<http://www.williamscactus.co.uk>

Marie's Pots

Have a look at our range of high quality new and used pots, BEF, Optipot, Plantpak etc.
Reliable Mail Order Service

web: www.mariespotsdirect.co.uk
email: maries.pots.direct@gmail.com

Tony Irons Cacti



17, White Lodge Park,
Portishead, Somerset BS20 7HH
Good Quality Home Grown Plants
and Imports

Lithops Plants available online
Plus check out Ebay offers
Visitors welcome by appointment.
Website: <http://www.tonyironscacti.co.uk>
email: tonyironscacti@talktalk.net

Kakteen-Haage

The oldest cactus nursery
Blumenstrasse 68
D-99092 Erfurt Germany
<http://www.kakteen-haage.com>
E-Mail: info@kakteen-haage.com



Southfield Nurseries - Cactusland

Bourne Road, Morton, Bourne, Lincolnshire, PE10 0RH U.K.

Tel: +44 (0)1778 570168



×Chamaelobivia 'Lincoln Gem'



Echinopsis 'Bourne Razzle Dazzle'



×Chamaelobivia 'Lincoln Firecracker'



×Chamaelobivia 'Lincoln Pink Diamond'



Echinopsis 'Shades of Bourne'

Southfield Nurseries, the home of 'Cactusland' – the largest cactus nursery in the United Kingdom. All of our plants are propagated here in our own nursery and we have many thousands of cacti ready potted for sale; over 750 varieties including many hybrids unique to Cactusland that we have developed ourselves.

Mail order service.

Visitors welcome (please check opening hours)

Enquiries: customer.services@cactusland.co.uk

Website: <http://www.cactusland.co.uk>

Arid Plants

Many cacti and succulents from arid regions around the world.
Small seedlings to specimen plants.

Mail order to UK and Europe

Tel: +44 (0)7973 630359

Email: aridplants@fsmail.net

Web: <http://www.arid-plants.co.uk>

Visitors welcome by appointment.
Colchester, Essex, UK



CACTUS SUCCULENT LITERATURE

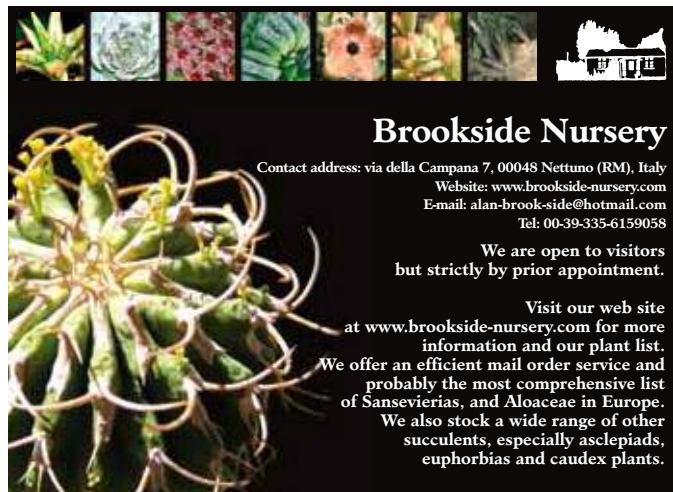
From more than 10 000 plants we are offering

SEEDS – thousands of items, mostly with locality data including 100 seed portions
LITERATURE - Offer us your book, booklet, catalogue etc.

Web: <http://www.cactus-succulent.com>
e-mail: info@cactus-succulent.com

Abbey Brook Cactus Nursery


You are welcome to visit:
Wednesday to Friday 13.00 – 16.00
Saturday & Sunday 13.00 – 17.00
Old Hackney Lane, Darley Dale, Matlock,
Derbyshire DE4 2QJ UK
Tel: +44(0)1629 580306
Email: brian@abbeybrookcacti.com
www.abbeybrookcacti.com



Brookside Nursery
 Contact address: via della Campana 7, 00048 Nettuno (RM), Italy
 Website: www.brookside-nursery.com
 E-mail: alan-brook-side@hotmail.com
 Tel: 00-39-335-6159058

We are open to visitors but strictly by prior appointment.

Visit our web site at www.brookside-nursery.com for more information and our plant list. We offer an efficient mail order service and probably the most comprehensive list of Sansevierias, and Aloaceae in Europe. We also stock a wide range of other succulents, especially asclepiads, euphorbias and caudex plants.



The Cactus Man
 Proprietor : John Gander
 Good Selection of Cacti & Succulent Plants
Opuntia Specialist
 See Website for Days of Opening & Events
 18 Bodgara Way, Liskeard, Cornwall PL14 3BJ
 UK
 Email : john@thecactusman.co.uk
 Web : www.thecactusman.co.uk
 ebay: thecactusmanuk

Kakteen Niess
 Perndorf 108, A-8182 Puch Bei Weiz, Austria

Interesting Website and on-line shop with a good selection of seedlings, particularly Echinocereus
<http://www.kakteen-niess.at/cms>


Kakteen - Piltz
Cacti, Succulents and Seeds
<http://www.kakteen-piltz.de>
 Nursery open for visits.
 Monschauer Landstrasse 162,
 D-5160 Düren - Birgel, Germany

J & J Cactus and Succulents



Joyce Hochtritt
 600 N. Pine St., Midwest
 City, OK 73130, USA
 (+1) 405-737-1831
Cactibud@cox.net
www.jjcactus-succulents.net
 Visits By Appointment Only

Corona Cactus Nursery



• Specializing in collector cacti and succulents
 • Mail Order - We ship to most countries, please inquire
 • The majority of our plants are seed grown
 • Quarterly newsletter, cultivation articles, photo galleries and more

Ralph Martin
 Cacti and Succulents for Sale or Swap.
 Various unusual plants available in limited quantities.
 Details at:
<https://www.rrm.me.uk/Cacti/forsale.php>

PLANTLIFE
 Cactus & Succulent Nursery
 Beechwood, 50, Friday Street, Eastbourne,
 East Sussex, BN23 8AY U.K.
 Stuart & Jane Riley
 Tel +44(0)1323 761943
 FAX +44(0)1323 724973
 email: mailto:plantlifenuresery@fsmail.net

Milenaudio

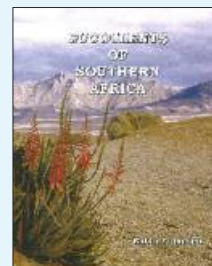
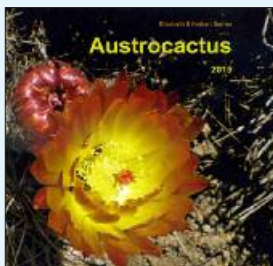
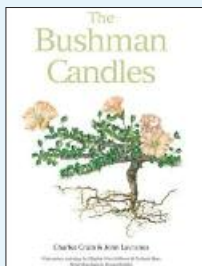
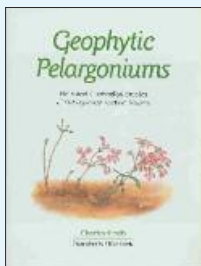
- Cactus & Succulent Nursery in Italy
- Specializing in Gymnocalycium and Lithops
- Seed grown plants
- Mail order service



Via Casalgrasso 1/a, 10022 Carmagnola (To) Italy
 Web: <http://www.milenaudio.it>
 Email: info@milenaudio.it

BOOKS FOR SALE

Keith's Cactus Books



For the widest range of books on Cacti and Other Succulents.

And a wide range of other plant and gardening books Delivery worldwide

facebook

Please visit www.keithscactusbooks.co.uk - As easy to browse as a paper catalogue

Please click on the book image to be directed to my website for details of the book

ExoticPlantBooks.com

Large Selection & Everyday Low Prices!

Easy-to-use On-line Catalog • Shop with Confidence!

1-855-838-2233 | info@exoticplantbooks.com

GYMNOCALYCIUM

IN HABITAT AND CULTURE

Copies of my book are still available from dealers around the world or from me.

If you would like me to sign it, please ask!

Graham Charles

[Gymno Book Website](#)

CHUCK EVERSON, BOOKSELLER

"Your Cactus Bookstore Specialist"

1444 E. Taylor Street Vista,
CA 92084-3308 USA

Specializing in literature concerning cacti, succulents, epiphytes, deserts, bromeliads, hoyas, palms, cycads, and ornamental plants from around the world.

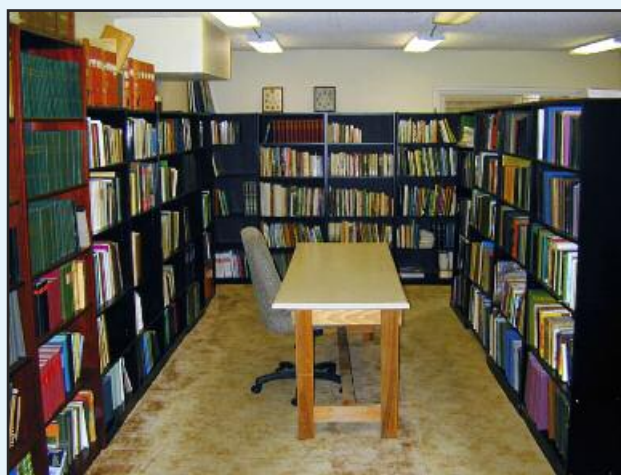
We have the latest books at the most reasonable prices.

We also buy and sell previously owned books on cacti and succulents.

WORLDWIDE SHIPPING. VISA/MASTERCARD.

Check with us for the best possible times to visit.

Our 35 years of experience tells you that you are in good hands.



Tel: 760-758-4290

www.cactusbookstore.com

ceversonbooks@cactusbookstore.com

If you have not already told me and would like to be advised when each issue of the **Cactus Explorer** is available for download, please send [me](#) your E-mail address and I will add you to the distribution list.