The Cactus Explorer

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

1 Isla Santa Catalina

2 Sulcorebutias of Ayopaya

3 Echinocereus ssp. nov.

4 Cacti of the Grand Chaco

5 Rhipsalis aurea

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The No.1 source for on-line information about cacti and succulents is http://www.cactus-mall.com

Cover Picture *Ferocactus diguetii* with *Pachycereus pringlei* growing on Isla Santa Catalina, Baja California Sur . Photograph by David Neville.

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 within 4 months and the copy deadline is just a few days before the publication date. There will be three or four issues per year, published when sufficient material is available. Please note that **advertising and links are free** and provided for the benefit of readers. Adverts are placed at the discretion of the editorial team, based on their relevance to the readership.

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This issue published on April 15th 2015

New taxon on Page 59

Introduction

That time again

In theory, the winter is a chance to catch up on jobs that don't get done in the busy growing season. Well, at least I managed to finish a few things I needed to do! Now, at the end of March, the glasshouse is regularly exceeding 20°C in the day and gentle watering is filling out the plants and they are starting to grow and flower.

It continues to puzzle me as to what makes particular plants popular. There has always been a strong following for Mexican cacti, even though most are very well known and their performance in cultivation is largely predictable.

When I first started growing, there was a constant stream of new species coming into cultivation and that was a great stimulus to interest. There are still really different plants being found but, at least for those coming from Mexico, there is no legal way to own a plant since the export of plants and seeds from Mexico has been banned for years.

In order to introduce some element of novelty into my glasshouse, I like to grow less well-known species. There are many epiphytes and cerei which are capable of flowering in cultivation and, not only is this a pleasant surprise, but it can sometimes add to our knowledge of the plants.

There are also some 'other succulents' in my collection including quite a few aloes for which I have always had an admiring regard. The larger growing aloes are architecturally pleasing, none more so than *A. plicatilis*, the 'fan' aloe, with its leaves arranged distichously on a branching tree-like plant. Molecular studies have resulted in the resurrection of the genus *Kumara* from 1786 to accommodate this species alone.

I have two plants growing in a raised bed and this year, for the first time, the two are flowering together so I hope to produce seeds.

I have done better with these plants since I watered them more, even a little in winter. Even so, they are small compared with those found in nature and those so often used as garden plants in mild climates. I have always wondered what it would be like to be able to grow cacti and succulents outside all year round. Does it make them less mysterious?

If you get flowers on something unusual, please send me pictures so that I can share the event with our readers.

Graham Charles

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

News and Events

Acta musei Richnoviensis

David Whiteley recently reminded me that this publication is available as a free PDF download. It contains many new cactus names. Those of us who take a broad view of cactus species would say that most of these do not deserve recognition at the botanical rank chosen but you can decide for yourself:

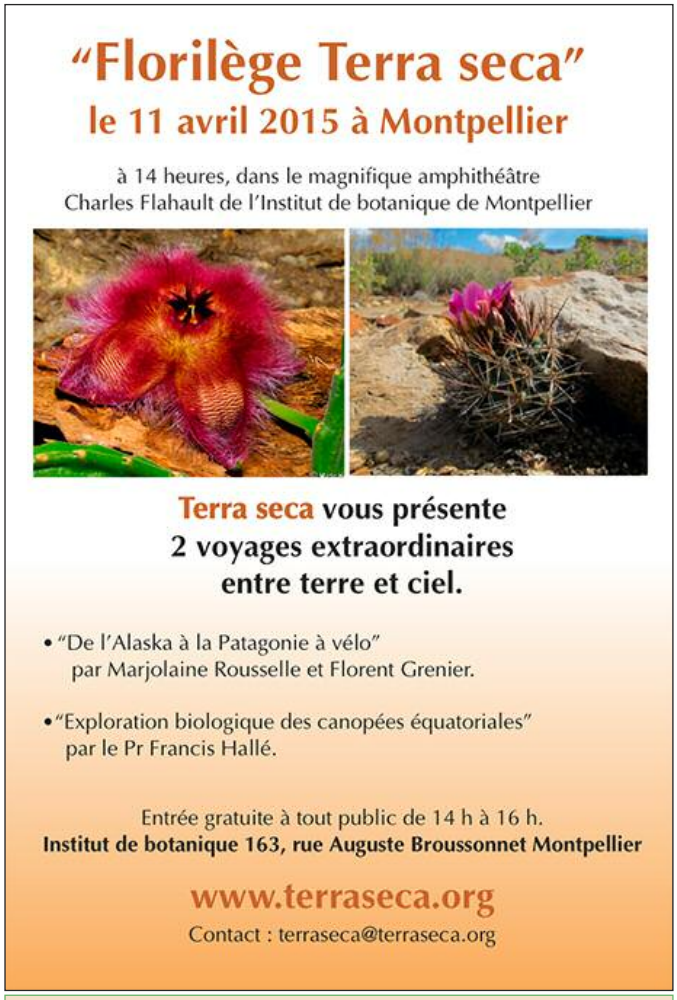
http://www.moh.cz/pdf/amr/50.pdf

GC

Large cacti for sale near Peterborough U.K.

Trichocereus chilensis/eburneus (3), one 5ft tall with hugh spines, about 5" in diameter. The other two are 3ft tall.There are 3 *Oreocereus celsianus* also 5ft tall and other smaller ones 3ft+. Multi-stemmed *Oreocereus trollii*, 18" to 2 ft, three plants, *Ferocactus* the size of a football, Multi-stemmed *Cleistocactus strausii*. *Notocactus leninghausii/magnificus*, very big *Mammillaria plumosa* and *bombycina*. 3 hugh *Euphorbia enopla/aggregata* types. *Stetsonia coryne* 15" tall. All plants in good condition.

Tel: 01733 233538 or email Mrs. Mortimer: jeanmortimer@live.co.uk



11th April 2015

Terra seca presents two extraordinary journeys between the earth and the sky.

• "**From Alaska to Patagonia by bicycle**" by *Marjolaine Rousselle* and *Florent Grenier*.

• "**Biological exploration of equatorial canopies**" by Prof. *Francis Hallé*.

Free admission to everyone from 14.00 to 16.00.

Institute of Botany 163, rue Auguste Broussonnet Montpellier, France

Information: terraseca@terraseca.org

www.terraseca.org

11th Spalding Cactus Mart

Saturday 25th April 2015
10.00 am until 3.00 pm

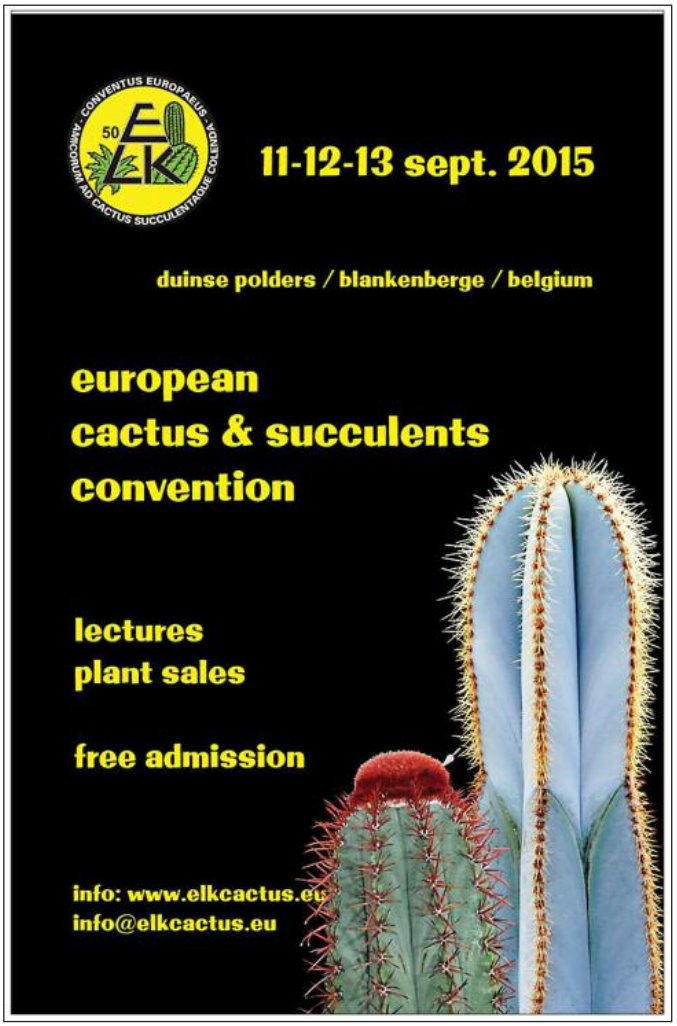
Holbeach Community Centre,
Fishpond Lane, Holbeach, Lincs,
PE12 7DE
United Kingdom

15 leading nurseries and growers:
Bob & Beryl Potter, Toobees Exotics
Ralph Northcott, Cactus Shop
Richard & Wendy Edginton
Lily Cartier & Philip Greswell
Jeff & Diane Capel, Northants/Milton Keynes Branch
Gordon & Joan Foster, Oak Dene Nurseries
Bryan & Linda Goodey, Southfield Nurseries
Rob Stevenson
Derek Bowdery, Eau Brink Cacti
Shaun Biggadyke
Stuart Riley, Plantlife Nursery
Doug Sizmur, Kent Cacti
Tim & Mink Wilson, The Plant Lovers
Keith Larkin, Keith's Cactus Books
Spalding Branch – sale of Tom Jenkins' plants

Ample **free** parking and **free** admission
Refreshments available all day
Contact: Gerry Blacoe 01778 393226
or email: gerald@blacoegb.plus.com

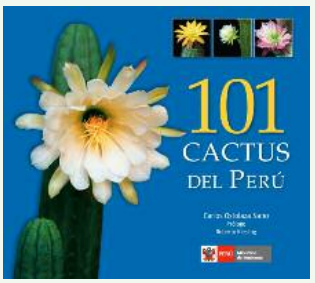
International Euphorbia Convention

16th & 17th May 2015
Botanic Garden Meise/Brussels (BE)
Details at:
www.euphorbia-international.org



Books about Peruvian Cacti

David Whiteley sent me links to free PDF downloads of two books about Peruvian cacti written by Carlos Ostolaza. Both these books were produced as printed volumes but it appears that the publishers made free on-line versions available as well.



101 Cactus del Peru can be downloaded from here.

Todos los Cactus del Peru is here.

Both books have Spanish text.

GC

Plant Sale in Austria

In May 2012, 2013 and 2014, the research team of *Gymnocalycium* held an international exhibition of cacti and succulents in the sports hall of Eugendorf near Salzburg, Austria. It was a big success with 40 growers from 9 nations who presented and sold 50,000 plants. Nearly 3,000 visitors came and many newspapers, radio stations and television teams made reports about this big event.

Because of the positive feedback from our visitors and exhibitors we will again organize the **KaktuS** exhibition on Saturday 30th and Sunday 31st May 2015.

The plants will be presented and sold (with sundries) in a 1000m² hall. Next to the hall are plenty of parking places and a restaurant. The locality is close to the motorway north of Salzburg.

There are also several very big furniture stores near to the sports hall, from where we also expect customers who will be informed with flyers and posters. Of course cactus friends from Austria´s cactus club and cactus friends from Germany will also be invited.

To help the organisation for this event, we ask you for your feedback as soon as possible. For this feedback we request you tell us how many meters you will need for the presentation of your plants. Our tables are 2.2 x 0.5m and cost €16.- each for the whole weekend. (A square meter for sundries from you costs €12.-)

Duration of the exhibition:
Saturday 30th May from 9.00 till 18.00.
Sunday 31st May from 9.00 till 17.00.

Contact for feedback, questions and information:

Helmut Amerhauser
Bahnweg 12
A-5301 Eugendorf
Tel. & Fax: 0043 (0) 6225-7222
e-mail: dha.gymno@aon.at

We shall be pleased to receive your reservation.

BCSS Zone 9 Convention

Zone 9 is holding its Annual Convention on Sunday 19th April 2015 at

Hardwicke Village Hall, Green Lane, Hardwicke, Gloucestershire GL2 4QA UK
10:00am – 5:00pm

Prof. Len Newton
Succulent Plant Discoveries in East Africa, Past, Present & Future

Graham Charles
Matucana in Habitat & Culture

Stuart Riley
The U.S. National Shows &
New ISI Plant Introductions

There will be the usual range of Plant Sales plus refreshments on arrival, Buffet Lunch and Afternoon Tea.

Tickets are £15 each (food inc.) and are available from all Zone 9 Branch Secretaries or the Zone Rep.

Full details on our Zone website at
www.zone9.bcss.org.uk

NEW! available in Spring 2015

TAXONOMY of the CACTACEAE

The new classification of Cacti based on molecular data and explained

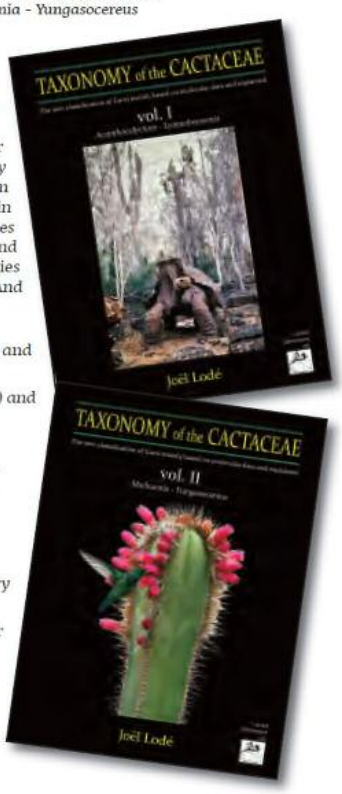
In two volumes:

Vol. I : Acanthocalycium - Lymanbensonia

Vol. II : Maihuenia - Yungasocereus

First classification of cacti genera based essentially (but not uniquely) on molecular genetics (DNA) and explained.

No book on cacti has never gone this far with illustrations, both in quantity (+7000 photos) and quality, but also in diversity, with plants photographed in habitat and collection at different stages of growth, also with flowers, fruits and even seeds (more than 360 species photographed on digital microscope)! And of course, all the latest discoveries!



- 177 genera recognized, all described and explained.
- Approx. 2360 listed taxa (sp. + subsp.) and photographed in alphabetical order,
- +1300 pages A4 size,
- Pollinators and dispersers illustrated,
- Graphs of min. / maximum altitudes,
- Illustrated etymology of genera,
- 177 distribution maps,
- Seeds illustrated for every genus,
- Description of habitats for every genus,
- Precise geographical distribution for each genus,
- 22 country maps,
- Glossary,
- Bibliography (500 citations),
- Index and synonyms.

e-mail: joel@cactus-aventures.com

Cactus-Adventures ed.

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information and online payments : **cactus-adventures.com**

Two volumes, A4 size, 1400 pages, +7000 photographs
Price of the two volumes: **189.00€** including postage
pre-publication: **169.00€** until 28th of February 2015 (after: 189.00€)
165.00€ for the 2015 Cactus-Adventures subscribers
http://cactus-aventures.com/Taxonomy_of_the_Cactaceae_ENG.html

CSSA Biennial Convention

14th - 19th June 2015

Pitzer College, Claremont, California

June 2nd - 13th

Pre-Convention tour of east-central Mexico

June 20th - 24th

Post-Convention tour of the Mojave Desert of California and Nevada

http://cssa2015.com

Books for Sale

Per Ansanger (Denmark) has an interesting list of books for sale.

Download the list.

The 11th annual

Cactus Explorers Club Meeting

September 18th - 20th 2015

Beaumont Hall, Leicester University

You are invited to attend the Cactus Explorers Club Meeting during the weekend of 18th – 20th September 2015 (1 week after ELK). Guest speakers *Andreas Hofacker* (Germany) and *Philippe Corman* (France)

Many more lectures, plant and book sales.

Total Cost: £215 including VAT, all meals, en-suite overnight accommodation and wine with dinners.

graham.charles@btinternet.com
http://www.cactusexplorers.org.uk/meeting11.htm

70 years!

BCSS Bradford Branch Anniversary

1945 – 2015

Saturday, 25th April, 2015
Wilsden Village Hall, Townfield, Wilsden,
Bradford BD15 0HT U.K.
Doors open 09:30

Dr. Colin Walker: Agaves through the ages
Graham Charles: Highlights of Brazil
Dorothy Minors: Flora of the Canary Isles

Raffle, plants and books sales,
Buffet lunch

Tickets £15 from Joan & Brian Thornton,
1 Badgergate Avenue, Wilsden.
Bradford, BD15 0LJ .
Phone: 01535 274755.
E.mail: jebthornton@btinternet.com

The Annual Meeting of the Tephrocactus Study Group (TSG)

Sunday 10th May 2014
Coddington Village Hall, Main Street,
Coddington, Newark, Notts. NG24 2PN
(not the new community centre)

Doors open at 10.30 for an 11am start.
The meeting will close at about 4pm.
Admission is free to everyone.

Ivor Crook "**Tephrocacti in the digital age**"
Paul Hoxey "**Recent observations on the Opuntioids of Peru**"

Tea and coffee will be available but you are advised to bring a packed lunch or visit a nearby inn for a carvery lunch.

Please advise John Betteley if you plan to attend. Tel.: 01636 707649, or by email: johnbetteley4@gmail.com
See the website : www.tephro.com

BCSS Oxford Branch

in association with the Haworthia Society

OXFORD BRANCH OPEN SHOW
including Haworthia Society Show
(Joyce Cocozza Memorial)
1st August 2015 at a NEW VENUE

Old Mill Hall, School Lane,
Grove nr Wantage OX12 7LB U.K.
10.30 am - 3.30 pm

Nurseries: Plantlife, Daniel Jackson, Toobees, Rene Geissler & Oxford Branch

Show followed by a lecture by **Alan Rollason**, Chairman of the Haworthia Society
"**An experience with Gerhard Marx**"

Details from Bill Darbon: 01993 881926
or e-mail william.darbon77@btinternet.com

BCSS Judges' Course

4th - 6th September 2015
Moulton College, Moulton,
Northampton, U.K.
BCSS members may book the weekend for £140 including all meals and accommodation in en-suite single rooms.
Contact Mal Weobley, 48, Rowan Drive,
Billingshurst, West Sussex RH15 9NF
Tel: 01403 782004
email: malvalweobley@talktalk.net

Sclerocactus-Aventures

For lovers of *Sclerocactus*, Jean Bonnefond's new website is a treat. Lovely pictures and French text.

http://sclerocactus-aventures.com

2015 Dates for your diary

CACTUS 2015 : Saturday 2nd and Sunday 3rd May at Tiercé, near Angers, France — a big sale of plants in a very pleasant location in western France:
http://www.arides.info/cactus.html

Zone 6 Show at Cambridge: 7th June

Zone 19 Symposium, Manchester: 20th June

Recent New Descriptions

Graham Charles draws our attention to the description of a new species of rhipsalis that was published in the latest edition of *Bradleya*. *Rhipsalis flagelliformis* looks like it will be a valuable addition to our collections in the future, especially since it appears to be tolerant of exposure to sunshine.

Photographs by the Gerardus Olsthoorn

The story started when Dutch-Brazilian cactus nurseryman, Gerardus Olsthoorn, saw a curious cactus at the garden known as Sítio Burle-Marx, belonging to the late, famous landscape and garden designer, Roberto Burle-Marx, in Guaratiba, a suburb of greater Rio de Janeiro.

Then, in June 2013, a friend of Gerardus, Sr Pedro Nahoum, discovered the Burle-Marx plant in habitat some 50km west of Campos dos Goytacazes, in the north-eastern part of Rio de Janeiro state. Later, Olsthoorn and Nahoum visited the habitat together in February 2014 and documented the plant's occurrence along 11km of an unpaved road, which lies to the south of a nature conservation park known as the Parque Estadual do Desengano. The mature stems were bearing pink to whitish fruits and, besides these, the plant's overall morphology suggested that it was likely to be a new species of the genus *Rhipsalis*. That was confirmed by its acrotonic branching in combination with its floral morphology (Barthlott & Taylor, 1995: 48).

Most recently, Zappi has relocated the specimen collected by Dimitri Sucre at the Herbarium of the Jardim Botânico, Rio de Janeiro (RB). It is the same taxon as the new *Rhipsalis* and Sucre's field notes indicate that it was actually collected jointly with Sr Burle-Marx in 1974 at a locality just a few kilometres north of the recently discovered habitat.

Fig.1 *Rhipsalis flagelliformis* with flower-buds and flowers in culture at Olsthoorn's nursery in Holambra, SP.

Fig.2 *Rhipsalis flagelliformis* with young fruit in habitat

Fig.3 Gerardus Olsthoorn and Pedro Nahoum (r) in front of tree bearing *Rhipsalis flagelliformis*, Feb. 2014

Rhipsalis flagelliformis is currently known only from a small, deforested, lowland Atlantic Forest habitat, extending along an unpaved road for a distance of 11km where it is epiphytic on a few surviving trees in four fragmented subpopulations.

Associated epiphytes found in the area visited in 2013/14 include the common bromeliad, *Aechmea nudicaulis* and less frequent cacti, *Rhipsalis lindbergiana* and *R. teres*. The total population of *R. flagelliformis* recently observed does not exceed 200 mature individuals which is limited by the small number of mature trees that remain in the deforested habitat. The longer term survival of the plant in this location must be in doubt.

Thanks are due to Gerardus Olsthoorn for the use of his pictures and for his work in bringing this remarkable plant to our attention. The above text is a short précis of the full article which was published last year in *Bradleya* 32. I suggest that you would enjoy reading the complete account of this fascinating discovery.

BARTHLOTT, W. & TAYLOR, N. (1995). Notes towards a monograph of Rhipsalideae (Cactaceae). *Bradleya* **13**: 43–79.

TAYLOR, N., OLSTHOORN, G., ZAPPI, D., KHEW, G. & QUANDT, D. (2014) A remarkable new *Rhipsalis* (Cactaceae) from eastern Brazil. *Bradleya* **32**: 2–12.

In The Glasshouse

Inspired by the article about the epiphyte *Schlumbergera opuntioides* in the last edition of the Cactus Explorer, Jacques Brun tells us about his experiences growing this beautiful plant. Photographs by the author

Fig.1 A grafted plant of *Schlumbergera opuntioides* growing in a veranda

I grow my plant in my veranda, a structure of 20m^2 which is like a greenhouse but with only 15% of the roof clear so the plant receives a lot of light, but never direct sun. In winter, the night temperature goes down to a minimum of 5°C and is generally 10 to 20°C during the day. I have had this species for 10 years, grafted onto *Harrisia* (*Eriocereus*) sp.

It can flower very well, as you see in the pictures, but last year I got only 4 flowers. During the summer months, May to October, I place it outside on the ledge of a window facing north. Judging from my experience, I conclude that the plant does not survive the heat of a greenhouse during summer: I tried with grafted plants or cuttings and, even if the plant doesn't die, it does not seem to be well and produces no flowers.

I tried many experiments each year to test the best way to be successful i.e. keeping it alive, care, growing, flowering, multiplication etc. Cuttings rooted directly in a pot are very difficult: I have 2 or 3 which are still "growing" on their own roots from perhaps 10 trials. 3 or 4 years later, they survive but do not grow.

Fig.2 In a good year, the plant can be very floriferous!

Fig.3 The old stem segments are very spiny, reminiscent of opuntias.

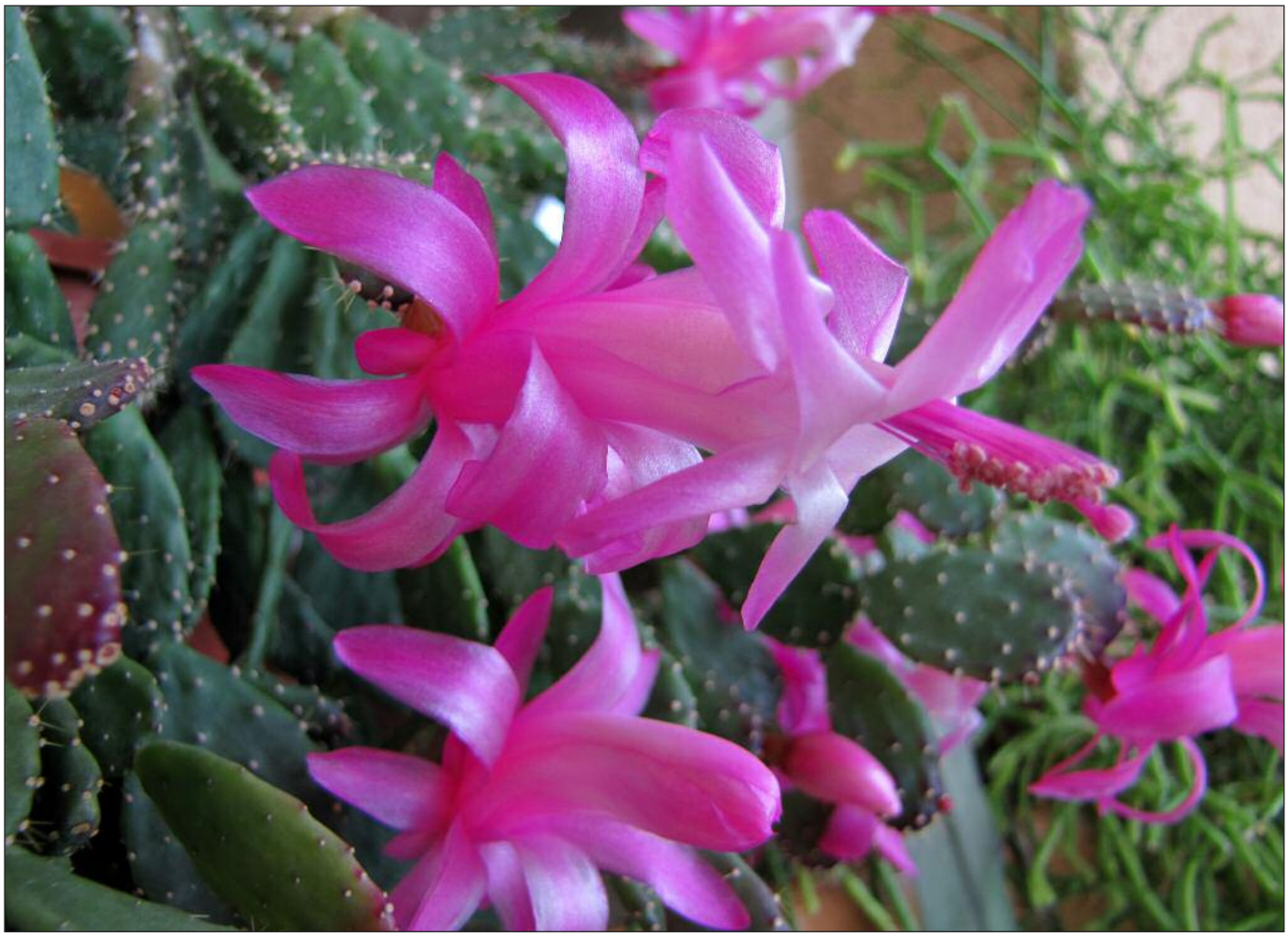


Fig.4 The lovely pink flowers are typical of *Schlumbergera*, presumably pollinated by humming birds in Brazil.

I tried several other cacti as grafting stocks and the best are:

1 : *Harrisia* sp.: Good growth, and fast flowering.

2 : *Opuntia* sp.: Good growth, and correct flowering (perhaps a little later).

3 : *Pereskiopsis* sp.: The fastest growth but not flowering. They do not survive after 3/5 years so only useful for easy and rapid multiplication.

4 : *Echinopsis oxygona* : Good growth but not flowering and too low for convenient culture.

5 : *Hylocereus* sp.: Good growth but not flowering.

6 : *Selenicereus hamatus*: Only tested once and not conclusive because of too much sun. However, I grafted *Schlumbergera truncata* on this plant and it has made very good growth and had very many flowers: I think it would be an excellent stock.

Schlumbergera opuntioides is a plant with a naturally hanging habit (more so than other schlumbergeras) so I graft it on a stock of 10 to 20cm high and the result is more aesthetic and the pots are easier to accommodate.

I don't know any friends who have obtained flowers in France, so I have not heard of the experiences of others to share. I should be very pleased to know about the experiences of **Cactus Explorer** readers.

Jacques Brun

Further Reading

HOFACKER, A. (2012). *Schlumbergera opuntioides* – Beobachtungen am natürlichen Standort. – EPIG **70**: 5–18.

HOFACKER, A. (2014). An opuntia-like epiphyte: *Schlumbergera opuntioides*. *The Cactus Explorer* **13**: 52–59.

It is always a thrill when an unusual plant flowers. Kamiel Neirinct specialises in the cacti of Brazil and takes wonderful pictures of them. Here he tells us about *Pilosocereus pachycladus* ssp. *pachycladus*.

Initially - according to Werdermann - the genus *Pilosocereus* (then known as *Pilocereus*) was only to be found in eastern Brazil. Around 1950, Backeberg and Voll published a number of species that they had found in Minas Gerais. In the fifties, sixties and seventies of the past century, Ritter, Horst, Buining and Uebelmann collected several plants, some of which were similar to those of Werdermann.

In Europe, these cerei had remained almost unknown. In addition came a number of new cerei originally described as *Pseudopilosocereus*. Amongst the most striking novelties were *Pilosocereus fulvilanatus* and *P. magnificus*. During the eighties and nineties of the 20th century more new discoveries followed – mainly from west and central Brazil – amongst which *Pilosocereus vilaboensis* and *P. lindanus* (according to Zappi belonging to *P. machrisii*). In the Brazilian state of Tocantins *Pilosocereus diersianus* and *P. flexibilispinus* were discovered. From western Minas Gerais came the densely hairy *Pilosocereus albisummus*, of which up till now only one single locality seems to be known. A nearly exterminated species is *Pilosocereus estevesii* from Minas Gerais, probably related to *Stephanocereus leucostele*.

The type of *Pilosocereus pachycladus* was discovered in 1964 in Brazil near Urandi in the state of Bahia and described by Ritter in 1979. It is one of the most remarkable species from the northeast of Brazil and is widely spread in dry regions and the campos rupestres. This taxon has a difficult and complicated history regarding its taxonomy and nomenclature.

According to Zappi, the naming of the newly found plants was not worked out correctly; resulting in too many "new" plants being described. Zappi categorized *Pilosocereus pachycladus* in the *Pilosocereus ulei* group in which also belongs *P. ulei*, *P. fulvilanatus* ssp. *rosae*, *P. magnificus* and *P. pachycladus* ssp. *pernambucoensis*. *P. pachycladus* represents a broad and complex range of forms. Tree-like plants widely occur in the northern part of the Caatinga woods. In central and northern

Photo: Kamiel Neirinct

Fig.1 *Pilosocereus pachycladus* ssp. *pachycladus* HU421a

Minas Gerais (Serra do Cabral and Pedra Azul) the plants have a shrubbier appearance.

Pilosocereus pachycladus grows on outcrops containing quartz at 400 – 1550m altitude in northern Bahia; in the Chapada Diamantina National Park westwards towards west Bahia; in the adjacent Minas Gerais (there on limestone rocks); in the northern part of the Serra do Espinhaço and in the northern part of the Serra do Cabral.

This blue cereus grows tree- or shrub-like and reaches a height of 1 to 5m, branches only at the basis or becomes a well formed shrub comprising branches that have a diameter of 5.5 to 10cm. The epidermis is light blue. The number of ribs varies from 5 to 12. There are 1 to 8 central spines and 8 to 18 radial spines. The colour of the spines varies from gold-yellow to brownish or even grey. The flowers are white with a light green to dark brown hypanthium.

The plant shown in the photos was bought around 1978 as an imported top cutting from Sukaflor in Sarmenstorf in Switzerland, then run by Mr. and Mrs. Uebelmann, importers of most Brazilian plants that were then offered for sale. At that time Horst and Buining went on exploratory trips with Uebelmann in Brazil. The plant carried the field number HU421a and was collected in the area of Urandi in the state of Bahia.

For decades the plant showed no sign of life. A few years ago – in 2012 – it was given a different place in the greenhouse. That same year the plant grew by 20cm. In 2014 it flowered for the first time with three beautiful whitish cream coloured flowers. Of course, the plant has a very eye-catching appearance. 'pachycladus' means 'with thick branches'. The other subspecies of *P. pachycladus* is ssp. *pernambucoensis*.

Kamiel Neirinct

References

BACKEBERG, C. (1950): Neue Kakteen aus Brasilien. *Arquivos do Jardim Botânico do Rio de Janeiro* **IX**:149 – 174.

BRAUN, P. & ESTEVES, E. (2001) Kakteen und andere Sukkulenten in Brasilien. *Schumannia* **3**.

RITTER, F. (1979) *Kakteen in Südamerika*, Band 1, *Brasilien/Uruguay/Paraguay*.

Photo: Kamiel Neirinct

Fig.2 *Pilosocereus pachycladus* ssp. *pachycladus* HU421a

TAYLOR, N. & ZAPPI, D. (2004) *Cacti of Eastern Brazil*. The Royal Botanic Gardens, Kew.

WERDERMANN, E. (1933) *Brasilien und seine Säulenkakteen*.

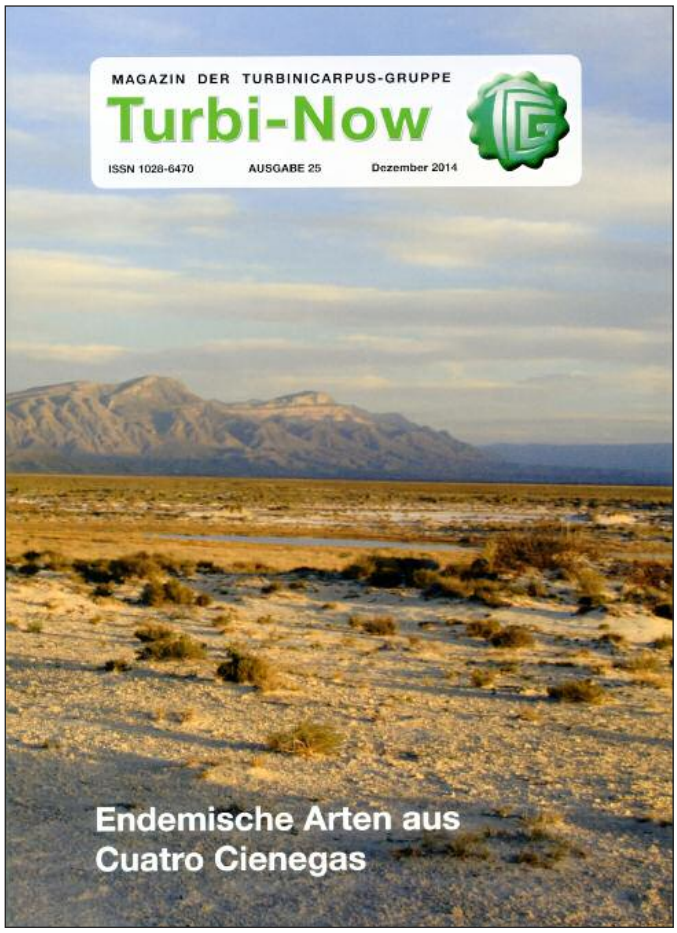
WERDERMANN, E. (1942) *Brazil and Its Columnar Cacti*. Abbey Garden Press.

ZAPPI, D. (1994) Pilosocereus (*Cactaceae*) *The genus in Brazil*. Succulent Plant Research 3.

Photo: Graham Charles

Fig.3 A shrubby form of *Pilosocereus pachycladus* ssp. *pachycladus* west of Itaobim, Minas Gerais, Brazil

Journal Roundup



Turbi-Now

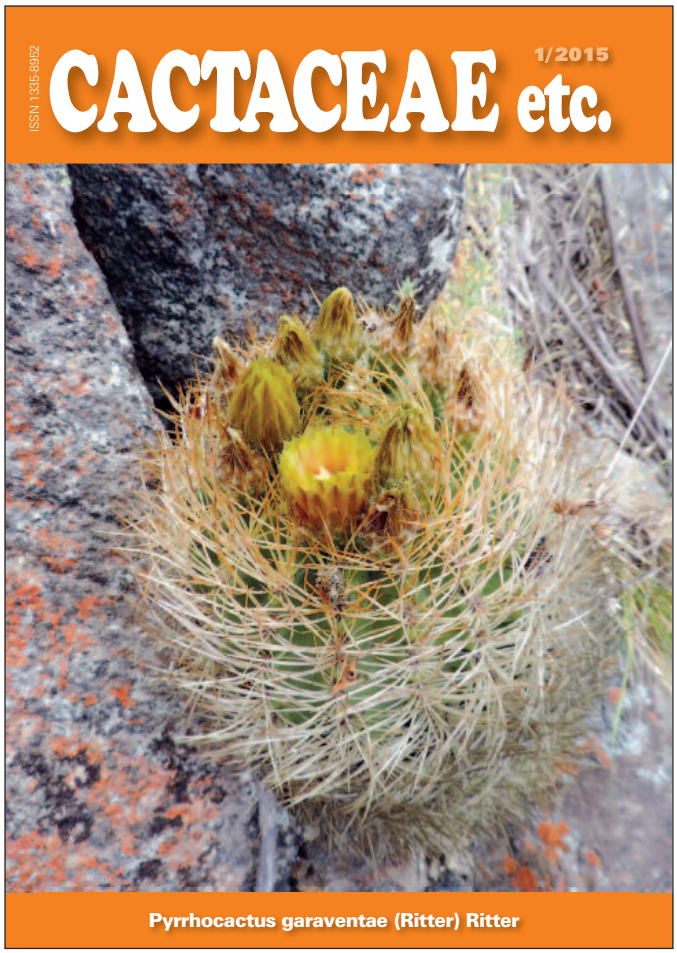
Journal of the Turbinicarpus Group

It is good that *Turbi-Now* is again being regularly published twice per year. Its remit has been expanded to include more of the cacti of Mexico. The large format allows the reproduction of large photographs of the plants as well as the dramatic landscapes. The text is in German.

The latest, issue 25, Dec. 2014, includes articles about the thelocacti of Cuatro Cienegas; The discovery of *Thelocactus lausseri*; *Ariocarpus fissuratus* in habitat in Mexico; *Coryphantha werdermannii*; Astrophytum including *A. capricorne* var. *niveum* and *Turbinicarpus beguinii* ssp. *francii*.

Subscription is very reasonable at just 10€ per year within Europe.

See http://www.turbinicarpus.org for more information



Cactaceae etc. - 25 years

The Magazine *Cactaceae etc*. with the first number in 2015 (97th in order) entered into its 25th year of publication. It is published by the Society Cactaceae etc. which has nearly one thousand members since 1991 and it is now considered to be the magazine for all growers of cacti and other succulents in Slovakia (Cactus and Succulent Journal of Slovakia). It is the successor of the journal *Kaktusy-Sukulenty* (Cacti-Succulents), which was published for 10 years from 1980 to 1989. *Cactaceae etc*. took only the best from its predecessor – more specifically, it increased the space for comments of growers of "other succulents" rather than just cacti, which earned this magazine many new readers not only in Slovakia, but also in the Czech Republic and in the rest of Europe.

For the past 25 years, the magazine has

significantly changed its appearance — from a small format, printed in black and white with only a colour cover — to today's much larger format with 40 pages. It's published 4 times a year and, as probably the first magazine in Europe, it is of course, in full colour. The quality is underlined by more than 20 years working with the same printing providers.

In recent decades, the magazine has built a network of exceptional writers at home and abroad – I will not mention all those from home, but the authors contributing to *Cactaceae etc.* have been, for example, G. D. Rowley, S. Carter and F. Hochstätter as well as many great Czech experts of succulent flora such as I. Richter, L. Kunte, J. Kolařík, J. Šnicer, J. Gratias, R. Štarha, Z. Janeba and many, many more – naming them all goes beyond the possibilities of publishing even in an online journal...

The magazine is equally devoted to the cacti from both Americas as well as succulents of the entire world, including those from Europe. To demonstrate this I mention the contents of the latest number 1/2015:

Roman Staník in his travelogue portrays *Pyrrhocactus garaventae* of La Campana National Park in Chile; Roman Štarha writes about *Euphorbia rubella*, a little known euphorbia from Ethiopia and the well-known facts are complemented with his travelogue notes; Petr Pasečný dedicated his article to hardy plants of the genus *Delosperma*, their horticultural use in Central European conditions and the introduction of the most beautiful species of the genus; Libor Kunte in his travelogue introduces *Oreocereus trollii* and its historical ties to A.V. Frič, the famous Czech traveller and cactus grower; Milan Zachar mapped cacti from around the Irecé in the Brazilian state of Bahia and complemented his text with number of photographs of plants of the genera *Melocactus*, *Discocactus*, *Micranthocereus* and *Stephanocereus*; R. Štarha continued presenting his favourite succulent plants of the genus *Aloe* (*A. glabrescens*) and reminded us of the accompanying vegetation of the Somali plants; Zlatko Janeba led us on a private visit to a Botanical Garden - The Ruth Bancroft Garden in Walnut Creek, California; Igor Drab posted the second part of an extensive series about the genus *Thelocactus* - this time on *Thelocactus macdowellii* of Arteaga in the Mexican state of Coahuila and his text was complement with knowledge of other professionals Vlastimil Lukeš and Maria Lukešová. All articles are, of course, complemented by great photographs.

In the middle of each issue, on a double page Photo Gallery, authors introduce one extraordinary cactus or other succulent in nature or from a collection — in this issue it is the new, still undescribed, *Austrocactus* sp. from Rio Chico in the province of Santa Cruz in Argentina.

All issues in one year have a total of 160 pages with published dates in January, April, July and October.

Igor Drab, editor-in-chief

More information is available on request, provided by the chairman of the *Cactaceae etc*. Society; Roman Staník:
e-mail: romstanik@hotmail.com or
roman23stanik@gmail.com

On-line Journals

On-line Journals for you to download free

Publishing journals on the web is becoming more popular and the number is increasing. Here are some links for you to download and enjoy.

Xerophilia

The eleventh issue of Xerophilia appeared in December 2014. It is published in Romania but most of the content is in English as well as Romanian. It is intended to focus on cultivation with articles about growing and propagating our plants.

Contents include: Rescue and Translocation of *Pelecyphora strobiliformis*; Three Weeks in Mexico; A Dane Visiting Romania; A Story About Friendship and Cacti; Wonderful Miniatures; Whakaari - White Island; *Mammillaria polythele*, *M. zeilmanniana* & other Cacti; A New Adventive Succulent Recorded in New Zealand: *Beschorneria yuccoides*; *M. bertholdii* "import snicer"; Inert Rooting; New Records of Non-Native Succulents in the Province of Valencia; Distribution of the Trifid Disease; Biznaga Blanca Chilona; A Cultivation Experiment *Copiapoa cinerea*; A huge *Ariocarpus retusus*.

The magazine may be downloaded as a pdf from

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

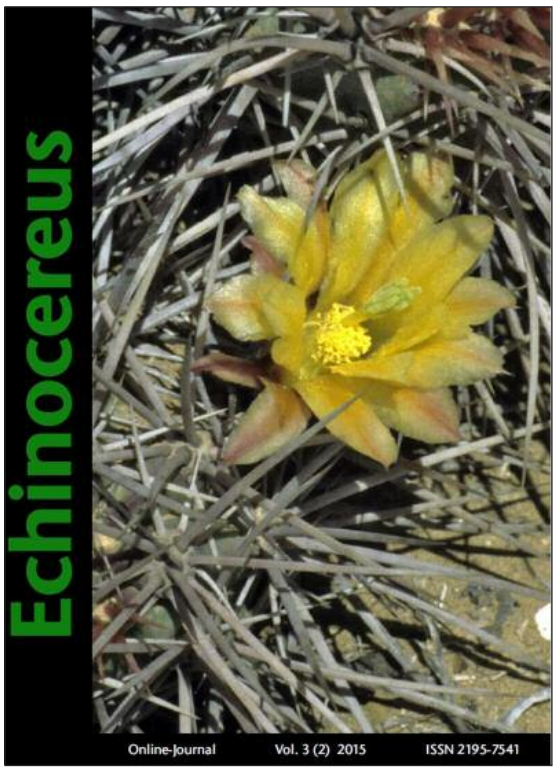
ECHINOCEREUS Online-Journal

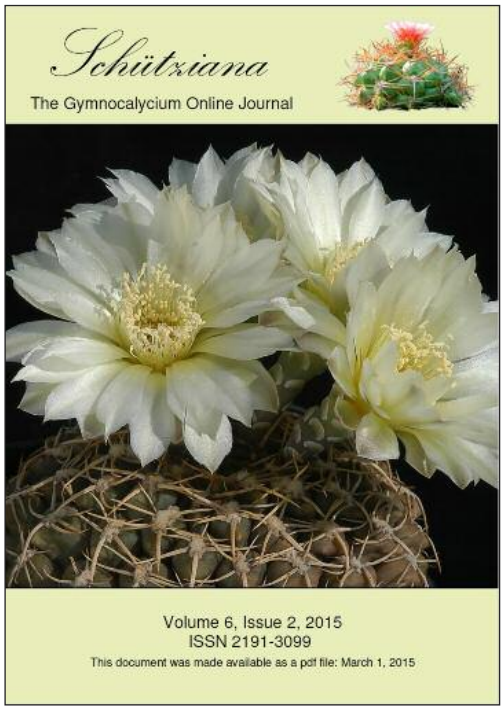
The German language on-line journal for Echinocereus lovers. The goals of this journal are to study the genus *Echinocereus*, to publish articles about the continuous research on these plants (classification, morphology, evolution) as well as to protect the genus *Echinocereus* by reproduction from seeds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

In this issue there are well-illustrated articles: Highlights of Baja Vacations. Interesting plants from the collection; *Echinocereus rigidissimus* (G. Engelmann) Hort. F. A. Haage.

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 an 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





Schütziana

The latest issue of Schütziana, the specialist on-line journal for *Gymnocalycium* enthusiasts, feature an article from Wolfgang Papsch asking 'Which is the oldest name of the Gymnocalycium species from the Sierras Bayas?

The text of this valuable publication is in English and the pictures and distribution maps give a clear insight into the plants found in habitat and culture.

You can download free all the issues from:

www.schuetziana.org

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 on-line journal will be called "Sukkulenten"

See website: www.fgas-sukkulenten.de

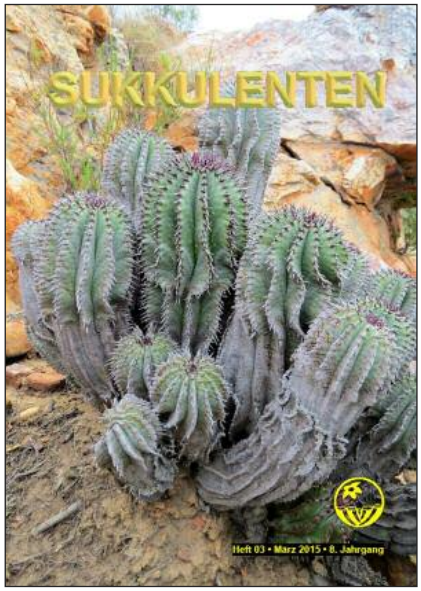
Annual seed list for members and much more.

Special interest groups for *Aloe* (incl. *Haworthia* etc.), Ascleps, *Euphorbia*, *Mesembs* 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



Succulentopi@

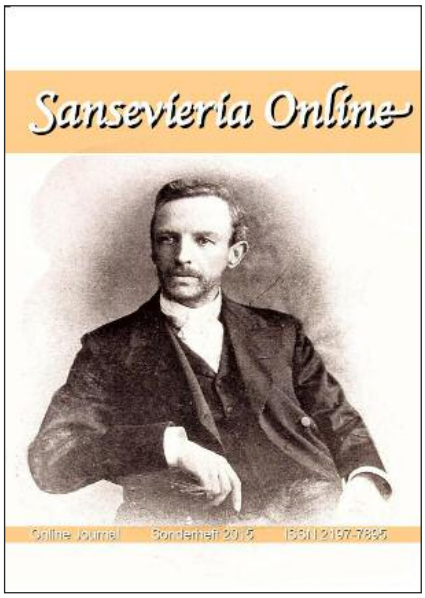
The 13th issue of this free online journal has recently appeared. This was the first online journal published in French. The quality is excellent in every respect.

It is available as a free PDF download from:

http://www.cactuspro.com/succulentopia

This issue includes a Photo Gallery; South African bulbs; An updated list of cacti in the Lima river valleys*, Peru; Reducing photos to the forum; Philately; Digital Library of CactusPro

*Following Anceschi & Magli (2013), the author transfers many familiar genera into *Echinopsis*. The current trends of superlumping and supersplitting delivers confusion for the average cactophile and ever increases the list of synonyms. I vote for stability! GC



Sansevieria Online

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

This special issue includes an article about Nicholas Edward Brown and a German translation of his 'Monograph of all known species of *Sansevieria*' from 1915

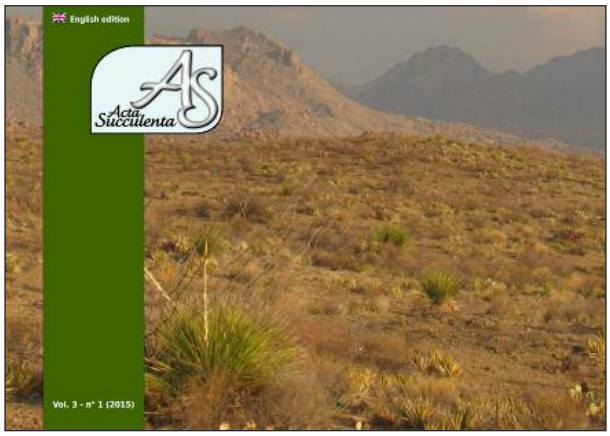
The publisher of this online journal have set themselves the goal of contributing more to clarify this wonderful genus.

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

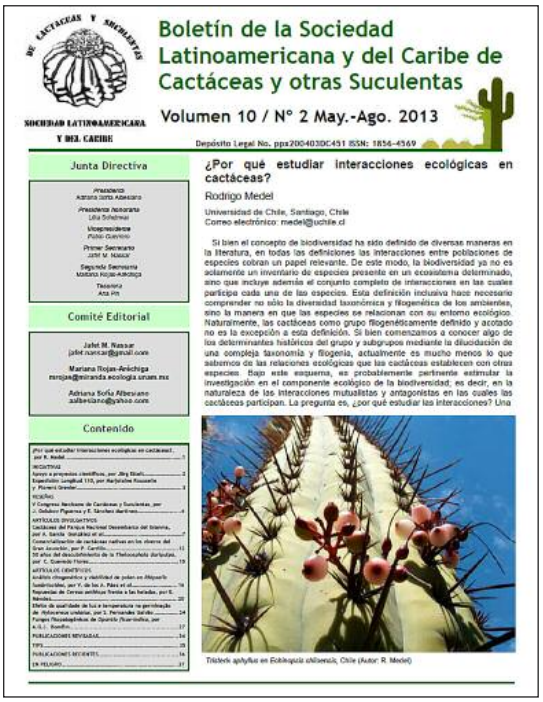
Acta Succulenta

The latest issue of this online journal that differs from others by its landscape format and notable for its professional page designs. It has really valuable content and is an entertaining read with good pictures.

In this edition: A Kenyan Succulent Adventure; *Carpobrotus*, the carpet of death; *Mammillaria paulii*, a poorly known gem; *Saxifraga longifolia*, the queen of the saxifrages; *Sedum sediforme* subsp. *dianium*, a Mediterranean endemic; Selective weeding on some succulent plants.



Download the PDF in English, Italian or French from http://www.acta-succulenta.eu



Bulletin of S.L.C.C.

This long-running Spanish language journal has been a mine of information about cacti and succulents of the Caribbean, Mexico and South America.

Each issue contains details about events taking place in the region. There are reports of meetings and field trips. Scientific papers are published and illustrated with interesting pictures, often of cacti we rarely see in print.

A very useful regular feature is the list of recent articles about succulents that have been published in scientific journals. These studies can be difficult to find out about, but this listing often reveals fascinating insights into little-known plants.

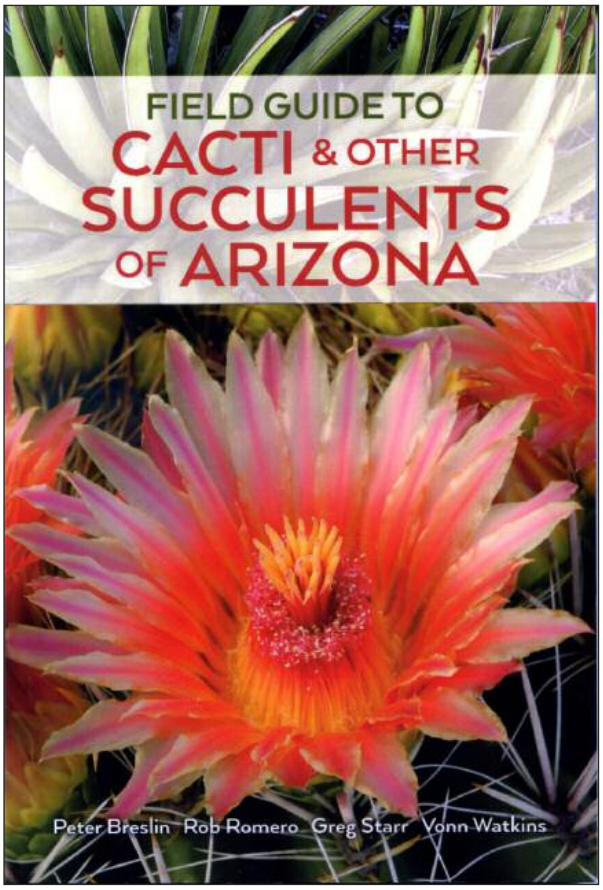
I have not been able to find any issues for 2014 but free PDF downloads of all the existing issues are at:

http://www.ibiologia.unam.mx/slccs/www/boletin.htm

The Love of Books

News of Recent Publications. A Reminder of Old Favourites.

Many cactophiles enjoy reading about their plants, particularly in the winter when our collections are less demanding. This feature aims to provide you with inspiration.



Field Guide to Cacti & other Succulents of Arizona

Peter Breslin, Rob Romero, Greg Starr & Vonn Watkins

Here is another new book about the cacti and succulents of the US state that we probably associate with cacti more than any others. A walk in a saguaro 'forest' is certainly an unforgettable experience and the easy availability of good accommodation makes Arizona a favourite destination for cactus tourists.

When planning a visit you need to know where to go to see the plants so a field guide is a great help. This one, published by the active Tucson Cactus and Succulent Society, is comprehensive and very good value, selling in the US for about $26.

The book comprises 302 pages 230 x 152mm, perfect bound with picture soft cover. It is very well produced with a generous amount of high quality colour photographs printed on good quality gloss paper.

The main part of the book is an account of the species found in the state, well illustrated with pictures showing the features which would help you to identify the plant.

For each species there is a description, the etymology of the name, the distribution, its habitat and some notes which often include information about the plant's conservation status and its cultivation in the Arizona area.

I am especially pleased with the 'other succulents' being included. I have always found the identification of Yuccas and Agaves particularly challenging.

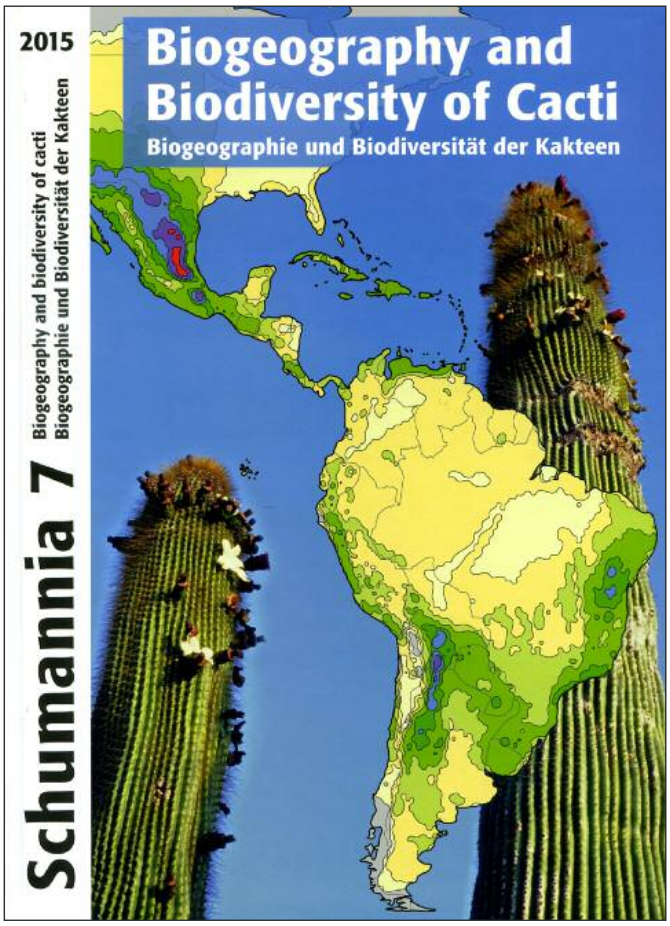
It is good to see the book's organisation based on the botanical name rather than the common names which mean little to those of us who don't live there. There is also a pronunciation guide for the Latin name.

The authors are to be congratulated on producing this guide. It must have taken much fieldwork to research the contents, but Arizona is a pleasant place to travel around and I am sure they had a great time doing it.

You can see two of the authors describing the project at: https://www.youtube.com/watch?v=MccTxpNy6xs

It is available directly from the publisher at http://www.tucsoncactus.org/html/fieldguide.html or Exotic Plant Books but I expect that European dealers will soon offer this reasonably priced book.

GC



Biogeography and Biodiversity of Cacti

Schumannia 7

The latest edition of *Schumannia* has just been published. It is the occasional publication of the German Cactus Society and is used to publish more technical articles in German and English.

This edition is a comprehensive account of the Cactaceae with regard to ecology, biogeography, phenology, evolution and systematics. There are also chapters about diversity, endemism and conservation. It includes a large number of distribution maps down to species level.

The references chapter is oddly incomplete and sometimes even wrong. I noticed that the reference to my book under *Gymnocalycium* on page 85 [CHARLES (2009)] when looked up in the references is listed as my article about *Micranthocereus* published in the CSSA journal!

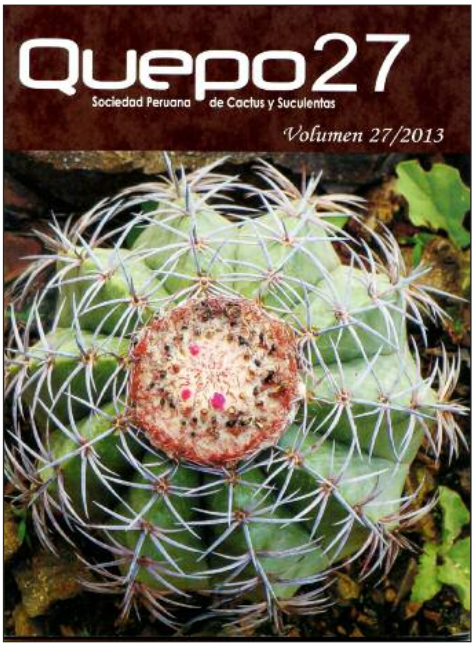
This is a good place to read about the results of molecular studies of the family, brought together as a whole.

It is good to see the distribution maps published. I was part of a team of UK IOS members who helped to check and correct the maps which had resulted from the first study. It was a very interesting and thought provoking process. Reading this volume will give you a good insight into why plants are where they are now to be found.

It comprises 206 large format (A4) pages hardbound in picture covers and is printed on high quality gloss paper. There are 333 maps and 55 colour pictures, the latter being rather dark when compared with the excellent quality usually associated with German printing.

Schumannia 7 is available form the DKG at http://www.dkg.eu/cms/cs/index.pl?navid=1306 for 46€ outside Germany.

GC



Quepo 27

Journal of the Peruvian Cactus Society

The latest edition (Spanish language) of *Quepo* was published in 2013. It contains well-illustrated articles about La Libertad; *Mila*; Los jardines de rocalla, Arequipa; The First National Congress of SPECS; art and stamps.

Available for $US 20.00 including postage

specs.quepo@gmail.com

Cactus People Histories

Who is Jorge Meyran?

J. Jesus Morales tells us about the achievements of this remarkable man who made a significant contribution to the study of cacti and succulents in Mexico.

Talking about the "Cactáceas y suculentas Mexicanas" journal of the Mexican Cactus Society, is like talking about Dr. Jorge Meyran Garcia who is certainly, for the people who have the pleasure of knowing him, a man with great qualities and outstanding human goodness. This is characterized by a great deal of humility to share his vast knowledge with both amateurs and researchers of succulents who visit him. But, who really is Jorge Meyran Garcia?

Fig.1 Dr. Jorge Meyran Garcia

Jorge Meyran Garcia was born in Mexico City in 1919 and is a medical doctor by profession, qualified by the National Autonomous University of Mexico (UNAM) and with a specialtiy in ophthalmology. He exercised his profession for many years in the General Hospital of Mexico and was a professor of the specialization in ophthalmology as well as president of the Mexican society of ophthalmology (1969); one of the most important medical societies of Mexico. In his professional life he wrote various articles and books on ophthalmology.

Dr Meyran, like many people, began as an amateur with an interest in cacti and it was in a library where he found the book *Las Cactaceas de Mexico* written by Helia Bravo Hollis in

Fig.2 Journals of the Mexican Cactus Society

Fig. 1.—*Ferocactus flavovirens*, cerca de Acatepec, Pue.

GUIA BOTANICA DE CACTACEAS
Y OTRAS SUCULENTAS DEL
VALLE DE TEHUACAN

Por Jorge Meyrán García

Publicada por la Sociedad Mexicana
de Cactología, A. C.

Julio de 1973

Fig.3 Botanical guide to the cacti and other succulents of the Tehuacan Valley. (1973)

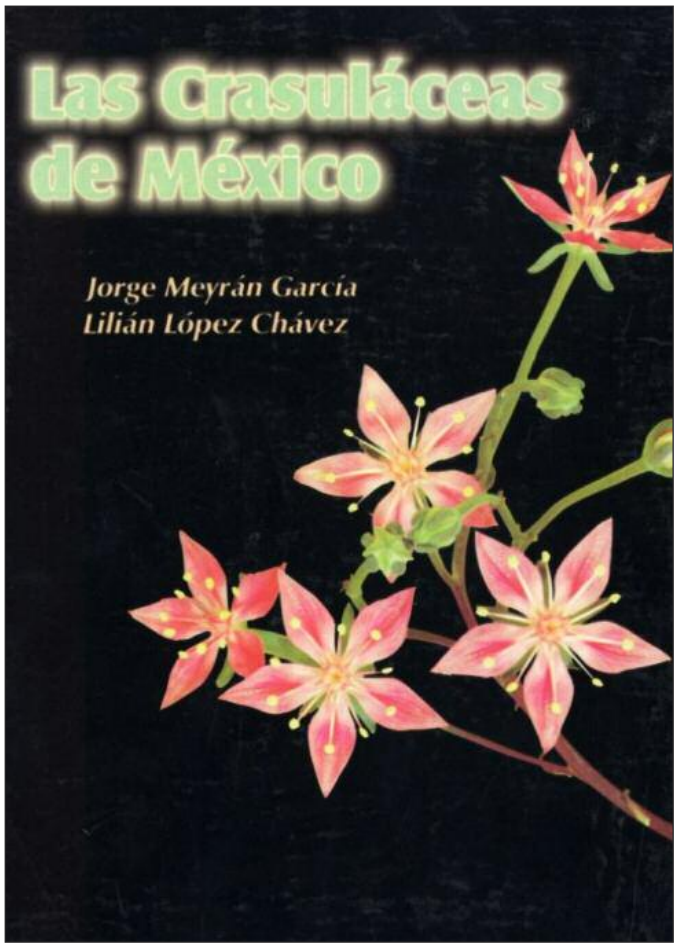


Fig.4 The Crassulaceae of Mexico

Fig.5 *Mammillaria meyranii* and *Echeveria meyraniana*

Fig.6 One of the best echeverias, *E. laui*, was discovered by Jorge Meyran

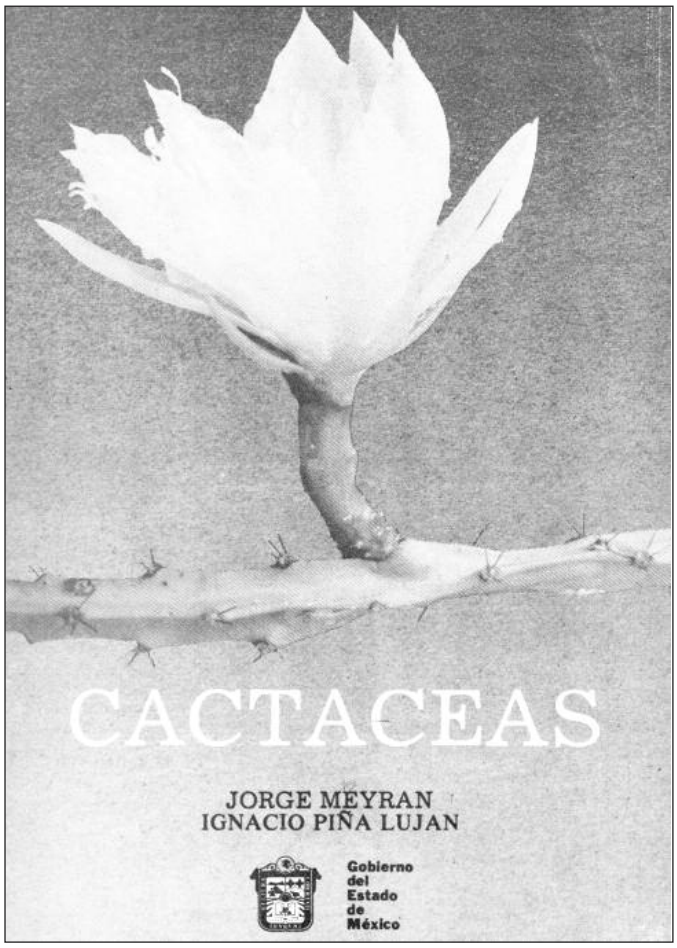


Fig.7 The cacti and other succulents of the State of Mexico.

1937. His hobby led him to know the author who, along with Hernando Sánchez-Mejorada and Eizi Matuda (also amateur cactus researchers), formed the Mexican Cactus Society in 1951 and years after the publication of the magazine started, still in charge as editor was Dr. Meyran.

As editor, he published the magazine without interruption from the first edition in 1955 to 1998. In this journal they published different kinds of national and international articles in English and Spanish, where they published several important researches worldwide. Dr. Jorge Meyran wrote several articles, one of the most important about his Stenocactus studies, but also some publications and books among which the most notable are:

The cacti of the Valley of Tehuacán. (1973) (*Guía Botánica de Cactaceas y otras suculentas del Valle de Tehuacán*) [Fig.3]

The cacti and other succulents of the State of Mexico.
(*Las cactáceas y otras suculentas del estado de*

Recognition to Dr. Jorge Meyran for his trajectory by the Presidente of the Mexican Cactus Society, Omar Gonzalez Zorzano (Photo: Eramos Vazquez-D).

Fig.8 Tribute to Dr. Meyran, on the 60th anniversary of the Mexican Cactus Society.

México) [Fig.7]

Names of the cacti and their meanings (*Nombres Comunes de los Cactus y su significado*)

At the same time, the Dr Meyran was a pioneer in the study of the Crassulaceae family because in 2003 he published the first book in Spanish and the first of its kind entitled *Las Crasulaceas de México* (Crassulaceae from Mexico) an important work and excellent contribution to the scientific community that describes many of the species of Crassulaceae discovered by the author such as *Echeveria laui* for example.

Dr Meyran has been recognized for his contributions to the study of this wonderful family of the succulents, so three species have been named in his honor:

Mammiilaria meyranii (H. Bravo)

Echeveria meyraniana (E. Walther)

Sedum meyranianum (J. Metzger and A. Roses)

Similarly there is a botanic garden that bears his name:
Botanical Garden Jorge Meyran el Llano in

Fig.9 Dr Meyran in 1966. As president of the Mexican Society of Ophthalmology.

Aguascalientes State, Mexico.

Among the many honors Dr Meyran has received are:
Fellowship of the Cactus & Succulent Society of America

Diploma for his work in the National School of Biological Sciences (IPN)

Medal to the academic merit of the Mexican Society of Ophthalmology.

The number of publications authored by Dr. Meyran exceeds 100:

Ophthalmological Publications	±23
Ophthalmological Publications, historical and cultural	25
Botanical	±80
Brochures and chapters in books	5
Books	4

Jorge Meyran today

Now, in his 96th year, we pay this humble tribute with deep admiration and gratitude to such a fine person, with a strong moral quality that is certainly a great example, not only for those of us who are doctors, but for all the amateurs and students that share an admiration for cacti and succulents.

J. Jesus Morales
(Faculty of Medicine. UNAM.)

jesusbosco@comunidad.unam.mx

On the way to the south-eastern part of the Kaa-Iya National Park of the Gran Chaco in the lowlands of Bolivia

Volker Schädlich is a German specialist in the genus *Gymnocalycium* and has a great passion for the Gran Chaco. He tells us about his travels to the Chaco of eastern Bolivia.

Translated by Graham Charles. Photographs by the author.

The National Park was founded in 1995 in Bolivia and protects the largest remaining remnants of the Gran Chaco dry forests. The vast wilderness is one of the last unspoiled bush and dry forest regions of the Chaco. Overall, the largest national park of Bolivia covers an area of 3,441,115 hectares. The average annual temperature is 26°C. There are large variations in temperature during the year due to the influence of cold fronts from the south.

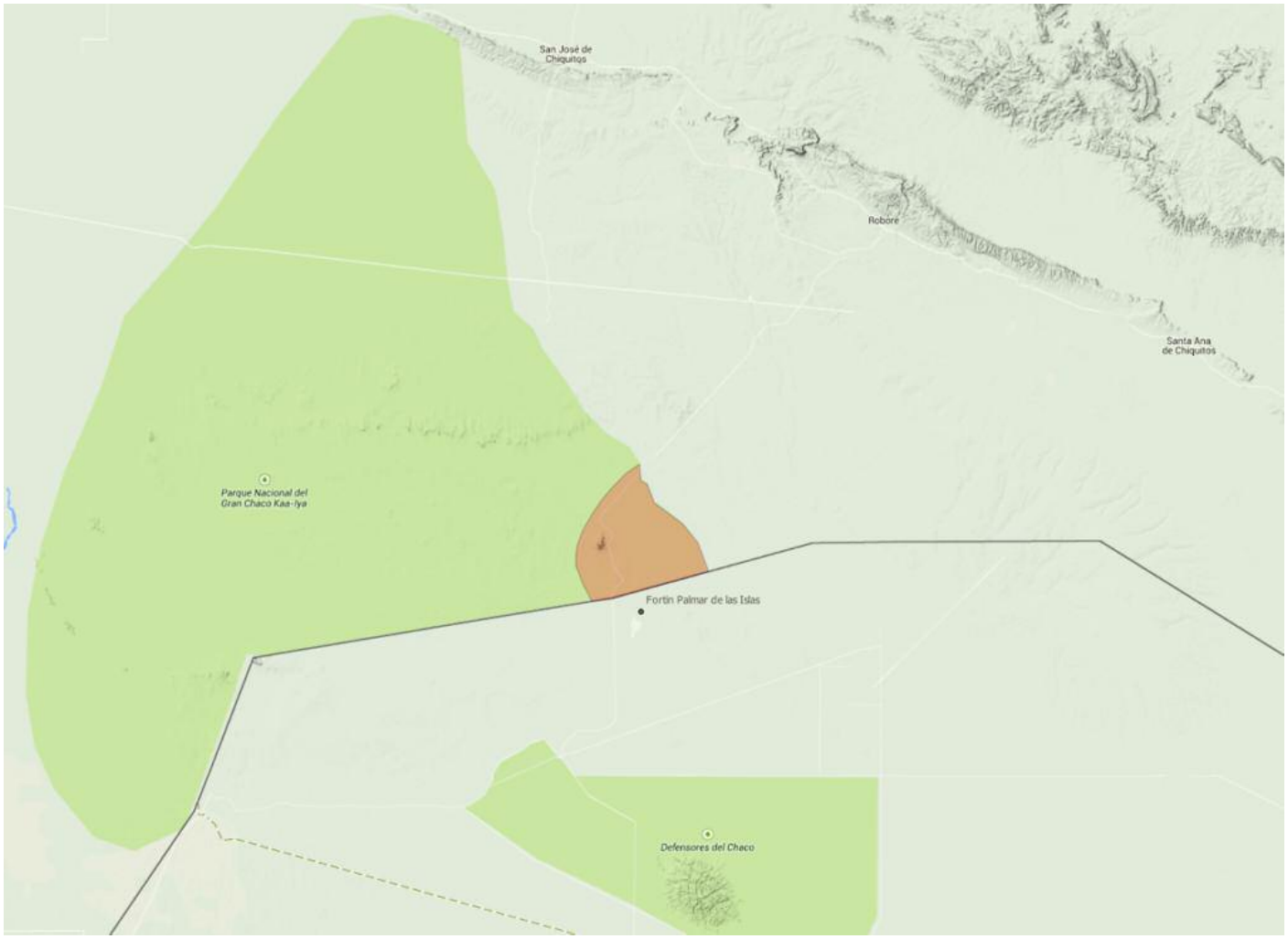
I would like to describe here a difficult to access area in the south-east of the park. After I had no luck getting into the park in 2003, because the Bolivian military denied us the onward journey for unexplained reasons, I tried it again three years later, this time from from Paraguay.

Fig.1 El Palmar military post in northern Paraguay.

Fig.2 *Gymnocalycium mihanovichii*

Fig.3 *Frailea* spec.

Fig.4 *Gymnocalycium eurypleurum* from its northern-most occurrence in Paraguay.



Map 1 Map of National Parks (Mario Wick)

Fig.5 My travel companion Ludwig Bercht and I when we reached the border.

Fig.6 This palm belt has an east-west extent of about seven kilometers.

Up to about 15 kilometers south of the border with Bolivia, we found *Frailea* spec., *Gymnocalycium mihanovichii* (Frič & Gürke) Britton & Rose and *Gymnocalycium eurypleurum* Ritter [Figs.2 - 4].

So far, *G. mihanovichii* and *G. eurypleurum* has never been found in the Chaco of Bolivia.

To my great surprise here, in the border area, the Chaco vegetation with its succulent bush vegetation completely disappeared.

After the border is passed through, the vegetation becomes more dense [Figs.7 & 8].

As we have left the first ten kilometers of the National Park Kaa Iya behind us, we are

Fig.7 Dense vegetation after the border.

Fig.8 Dense vegetation after the border.

Fig.9 *Jatropha grossidentata*

Fig.10 *Echinopsis rhodotricha* ssp. *chacoana*

Fig.11 *Gymnocalycium* spec.

Fig.12 Cerro Miguel from a distance.

always looking out for cacti. At the edge of the road we see a *Selaginella* sp. and *Jatropha grossidentata* Pax & Hoff [Fig.9].

Later we find the first spherical cactus *Echinopsis rhodotricha* ssp. *chacoana* (Schütz) Brown & Esteves [Fig.10] and *Gymnocalycium* spec. [Fig.11]

We drive further north. From a distance we

Fig.13 *G. anisitsii* var. *griseopallidum* sensu Till & Amerhauser near the Cerro Miguel

Fig.15 *Gymnocalycium* spec. near Cerro Miguel.

Fig.17 *Frailea* sp. near to Cerro Miguel

Fig.14 *G. anisitsii* var. *griseopallidum* sensu Till & Amerhauser near Cerro Miguel

Fig.16 *Frailea* sp. near to Cerro Miguel

can see the Cerro Miguel [Fig.12].

In the immediate vicinity of Cerro Miguel can be found gymnocalyciums that were described by Till and Amerhauser as *G. anisitsii* var. *griseopallidum*. In the park we found several populations of this taxon. Further investigations are needed to continue to clarify the relationships. These specimens do not match the plants that were described invalidly as *G. griseo-pallidum* Backeberg,.

Figure 16 and 17 show a *Frailea* that grows along with *Echinopsis rhodotricha* ssp. *chacoana* and *Gymnocalycium* spec. near the mountain. This *Frailea* belongs to the relationship of *F. angelicana* Diers & Schädlich.

Fig.18 The Cerro Miguel

Fig.19 The military post Fortin Ravello is at the foot of the mountain.

Fig.21 *Gymnocalycium chacoense* growing on the steep rocks.

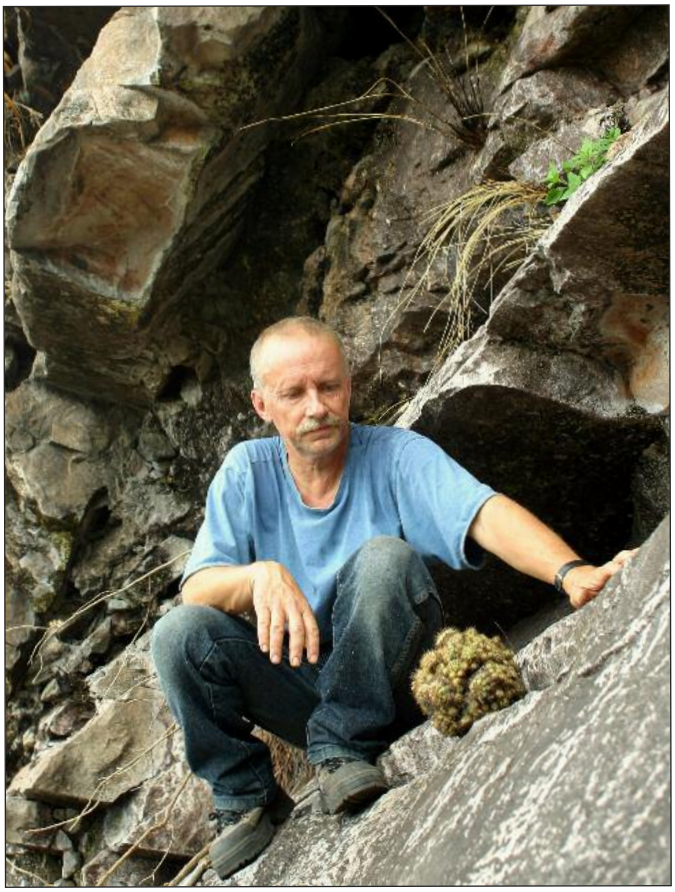


Fig.20 The author with *Gymnocalycium chacoense* that is only found on the steep rocks.

Hans-Jörg Jucker climbed the mountain in October 1986. On the rocks he found a gymnocalycium that reminded him of a sea urchin. A plant from his collected seeds has been cultivated in Zurich Sukkulenten-Sammlung since 1994. In 1995, Helmut Amerhauser and his companions visited the Cerro San Miguel for the first time, coming from the direction of Robore. In the journal GYMNOCALYCIUM 12(4): 301-304 (1999),

Fig.22 On the way to the type locality of *F. larae* Vasquez.

Fig.23 On the way to the type locality of *F. larae* Vasquez.

Fig.24 *Frailea larae* is hard to find.

Fig.25 *Frailea larae* has plumose white spines.

Amerhauser described the plant as *G. chacoense* Amerhauser.

This plant has been found only at the Cerro Miguel and for me is one of the most beautiful discoveries belonging to the genus *Gymnocalycium*. Specimens are growing only on the mountain cliffs [Fig.20] in the upper third of the mountain. It is a relict habitat.

G. chacoense can be found on the steep rock walls in small crevices or cavities filled with deposits of humus [Fig.21]. The plants offset very strongly. Probably due to the almost exclusively vegetative propagation, the population at the site is very uniform. Clusters with 50 bodies are not uncommon.

In the far eastern part of the National Park Kaa Iya-there is one area that has been visited only by a few field workers. Raul Lara Rico discovered there a *Frailea* which was described in 1994 by Roberto Vasquez as *Frailea larae* [Figs.22 & 23].

The isolated plants are growing strongly drawn into the soil in the dry season and thus, despite the prevailing sparse understory vegetation, it is hard to find them. The soil consists of weathered limestone. *Frailea larae* is cleistogamous fruiting. The species has plumose white spines [Figs.24 & 25].

Here, there is sparse understory vegetation and soils with weathered limestone [Fig.26]. During our first visit at the type locality of *F. larae* we found no fraileas, but there were interesting gymnocalyciums [Figs.27 & 28]. We found there several budding groups of these plants.

These examples are reminiscent of the old collections of Father Hammerschmid that he made in the Salinas south of San José. Later, from personal information given by Father Hammerschmidt, these plants were brought to Europe by Alfred Lau under the field number Lau 368. Backeberg had described them invalidly as *G. griseo-pallidum*.

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Fig.26 Sparse understory vegetation and soils with weathered limestone around this area.

Fig.27 Interesting *Gymnocalycium* sp. at the type locality of *Frailea larae*.

Fig.28 Budding groups of the interesting *Gymnocalycium*

Fig.29 *Gymnocalycium chacoense* HA990 from the type collection. Photograph & collection: Graham Charles

References

BACKEBERG, C. (1966): *The Cactus Lexicon.* p.167, 172. Jena: G. Fischer.

TILL, H. & AMERHAUSER, H. (2003): Die Gymnocalycien des Gran Chaco und der Savannen aus Argentinien, Bolivien und Paraguay. Teil 3. - Zur Identität des *Gymnocalycium anisitsii* und der übrigen Taxa der Series (k) Periferalia *Gymnocalycium* **16**(3): 523–532.

New Sulcorebutias from the Ayopaya region of Bolivia

Willi Gertel tells us about some populations of Sucorebutia found by the Swiss adventurer Hansjörg Jucker in the Rio Ayopaya region of Bolivia.

Translated by Graham Charles. Photographs by the author except where shown.

In the Ayopaya region one can find the northern-most populations of all sulcorebutias. Roughly speaking, it is almost exactly equi-distant from La Paz and Cochabamba. The river system, which defines the province Ayopaya in the west is called the Rio Ayopaya, in its southern part the Rio Sacambaya, in the central part and further north the Rio Cotacajes. Another important river is the Rio Sta. Rosa, the most northerly part of which is called the Rio Negro and joins the Rio Sacambaya near to Cotacajes. The largest city is the provincial capital Independencia.

In this article I am not going to deal with the well-known sulcorebutias from this area. There is already sufficient informative literature around. This article will serve to introduce some sulcorebutias that Hansjörg Jucker, the Swiss hiker with experience of Bolivia, has found during two walks in the surroundings of the estuary of the Rio Negro and Rio Sacambaya.

On his first walk through the Ayopaya region, he began by travelling in a truck from Independencia heading north towards Rio Sacambaya. Near the small town of Pocanche he found a path that led him onto a high mountain ridge heading directly north up to

Photo: H. Jucker

Fig.1 Overlooking the junction of the Rio Sacambaya that comes into the picture from the right and leaves at the left bottom corner. The river joining it from the centre distance is the Rio Negro.

Photo: H. Jucker

Fig.2 The barren landscape of the Laguna Pampa

about 3300m by a small lake. The ridge runs practically parallel to and west of the Rio Negro. After he had reached the highest point, he arrived at the Laguna Pampa just below 3000m and then further down he came across sulcorebutias (HJ939). The case of this discovery shows that it is not sufficient to judge a population from the observations at the site.

Based on the observations at the site and with the collaboration of Johan de Vries (Fritz, G., Gertel, W. & de Vries, J. 2008), this field number was listed in the Compendium as *Sulcorebutia arenacea* (Card.) Ritter var. *menesesii* (Card.) Gertel & de Vries fa. which was still accepted in the 7th edition of 2010. After more observations, it was corrected in the Sulcorebutia book (Gertel, W. & Latin, W. 2010) to *Sulcorebutia arenacea* var. *kamiensis* (Bred. & Don.) Gertel & de Vries - but that was just as misleading. In his contribution to the "Kakteenforum" (Gertel 2012), HJ939 can be found as *Sulcorebutia arenacea* var. *candiae* (Card.) Gertel & de Vries. De Vries (2013) agrees with this view, although he uses a rather polemical tone in his article towards the earlier authors. But in principle he is right. It makes more sense for newly discovered plants only to be referred to as *Sulcorebutia* spec. and to quote the corresponding field number. He was also right that var. *candiae* comes from an altitude of 2800m (Jucker already designated HJ939 in his travel journal from 2002 as *S. candiae*). To add further to the confusion with *Sulcorebutia arenacea* var. *kamiensis*, it is interesting that in this population the plants usually flower more or less orange, a colour which was so far known only from a few var. *kamiensis* clones.

During his further descent to Rio Sacambaya, Jucker found yet another sulcorebutia population at 1550m altitude, barely 100m above the river (HJ940). These plants were much denser-spined than HJ939 and there was never really any doubt that this was *Sulcorebutia arenacea* var. *menesesii*. This is also the specified altitude in the first description by Cárdenas (the altitude of Augustin and

Photo: H. Jucker

Fig.3 *Sulcorebutia arenacea* var. *candiae* HJ939 at the site

Fig.4 *Sulcorebutia arenacea* var. *candiae* HJ939 / Ge3 with orange flower

Fig.5 A particularly nice spined *Sulcorebutia arenacea* var. *candiae* HJ939

Photo: H. Jucker

Fig.6 *Sulcorebutia arenacea* var. *menesesii* HJ940 in habitat

Fig.7 *Sulcorebutia arenacea* var. *menesesii* HJ940 / Ge5 with interlacing spines

Photo: H. Jucker

Fig.8 A particularly fine specimen of *Sulcorebutia arenacea* var. *menesesii* HJ940 in the Jucker collection

Swoboda for HS210 as 1200m was always doubted). However, the Jucker discovery is not the same form as that which was used by Cárdenas for his original description, but probably the one that Ritter had once found in this area (FR775). Jucker found *Sulcorebutia arenacea* var. *menesesii* also on his way further along the Rio Sacambaya up to altitudes of about 1350m.

The continuation of this trip was quite dramatic for Hansjörg Jucker, not to say traumatic. He was running towards the south on the northeastern bank of the Rio Negro. Between the small towns of Aguada and Pucarani he was captured by locals and, like a goat, driven into the village and detained there without water and without access to a toilet for 16 hours. Some of his belongings were taken from him and the next day they drove him

Fig.9 *Sulcorebutia arenacea* var *candiae* HJ941 from the heights towards Sta. Rosa

Fig.10 Very strong spined plant of *Sulcorebutia arenacea* var. *candiae* HJ942

Fig.11 *Sulcorebutia arenacea* var. *candiae* HJ942 / Ge5 from the mountainside overlooking the Rio Sta. Rosa

Photo: H. Jucker

Fig.12 *Sulcorebutia arenacea* var. *densispina* HJ1289 in habitat

Photo: H. Jucker

Fig.13 Plant of *Sulcorebutia arenacea* var. *densispina* HJ1289 covered by curved bicoloured spines

Photo: H. Jucker

Fig.14 *Sulcorebutia arenacea* var *densispina* HJ1289. Habitat plant with yellow spines in the crown

towards the valley of the Rio Sta. Rosa. It shows the incredible audacity of the wanderer that he was a few hundred metres below the village, when he saw sulcorebutias and stopped at the plants (HJ941, HJ942) to photograph and study them in detail. They turned out to be the largest *Sulcorebutia arenacea* var. *candiae* (HJ942) that I know. They have beautiful long and thick, yellow, partially protruding spines that makes them stand out clearly from a group of S. candiae.

Only eight years later, in 2010, Hansjörg Jucker returned to the Ayopaya area. He had set out north of the Rio Sacambaya to explore the ridge. This is practically a continuation of his path from 2002 to the localities of HJ939 and HJ940. The northern mountain range is, however, up to almost 4500m high and obviously very dry and arid. Sulcorebutias

Photo: H. Jucker

Fig.15 *Sulcorebutia arenacea* var. *densispina* HJ1289 with dense spinatiom that gives the plant its name

Photo: H. Jucker

Fig.17 A very showy *Sulcorebutia arenacea* var. *densispina* HJ1289 with reddish brown pectinate spines

Photo: H. Jucker

Fig.19 Large, black spined plant of *Sulcorebutia* spec. / var. nov. HJ1290a

were unfortunately nowhere to be found there, so Jucker decided to descend to the east in the direction of Cotacajes. Near Cotacajes are supposed to be the type locations of *Rebutia* (*Sulcorebutia*) *menesesii* and *R. (S.) glomeriseta*, however, because of the lack of information, he did not find them. In the following days Jucker decided to run to the Rio Negro. Along the way, he found a sulcorebutia population (HJ1289), which is perhaps the most beautiful

Photo: H. Jucker

Fig.16 *Sulcorebutia arenacea* var. *densispina* HJ1289 with dense whitish spines

Fig.18 Light yellow spined *Sulcorebutia arenacea* var *densispina* HJ1289 / Ge1. Similar to plants also found by Ritter

Photo: H. Jucker

Fig.20 *Sulcorebutia arenacea* fa. HJ1290. Jucker found this light and close spined form in the immediate vicinity of HJ1290a

that was ever found in the Ayopaya region. John Carr (2014), who was travelling in 2013 with Johan de Vries, also reported recently on this locality. There is little doubt that these plants belong to the key species of this region, *Sulcorebutia arenacea*, but they differ so much from that and also from the other varieties in

Fig.21 *Sulcorebutia* spec. / var. nov. HJ1290a / Ge1 - a four year old seedling with an orange flower

Fig.22 *Sulcorebutia* spec. / var. nov. HJ1290a / Ge3 with brown spines and a yellow flower

Fig.23 Sulcorebutia spec. / var. nov. HJ1290a / Ge5 with a very large bright yellow flower

Fig.24 *Sulcorebutia arenacea* fa. HJ1290 / Ge1 shows an upwardly curved central spine on some of the lower areoles - very unusual for *S. arenacea* relatives.

the wider area, that we are of the opinion that they should carry a name at the rank of variety. The first description was recently published in *Succulenta* 94(1): 34–44 (2015):

Sulcorebutia arenacea (Card.) Ritter var. ***densispina*** Gertel & Jucker

Differs from *Sulcorebutia arenacea* (Card.) Ritter var. *arenacea* by its much longer, very dense spination. The colour of the spines varies from almost white to yellow, brownish and reddish. Flowers and seeds are more or less like the species.

Type. Bolivia, Dept. La Paz, Prov. Inquisivi, Cotacajes - Rio Negro, 2380m – HJ1289

He arrived at the Rio Negro and wandered around the upper reaches of the river until he found a suitable place to get out of this river bed. No sooner had he started to climb the extremely steep gravel slope at 1500m altitude, that he again found sulcorebutias which at first glance did not look particularly sensational. Since the incline was extremely steep and difficult, he could not do a particularly intensive search. Only 4 or 5 plants that were nearby could be photographed. Some of the plants were strongly reminiscent of *Sulcorebutia arenacea* var. *arenacea* (HJ1290) but others were significantly different (HJ1290a). Their plant bodies were dark green to almost black, and also the rather loose spines were black later becoming grey. All this was only realized later by studying the photographs. About one of the observed sulcos [Fig.20] we cannot say anything about the body colour, because of the dense spines, it cannot be seen. On the other hand, this is the plant you would most likely say that it has a certain similarity to *Sulcorebutia arenacea* v. *arenacea*.

So we have here again a problem, as reported above. From the site observations, one can only say a limited amount about the actual appearance of the plants. We had at first already planned to describe HJ1290a also as a new variety of *Sulcorebutia arenacea*, but that

Fig.25 *Sulcorebutia arenacea* fa. HJ1290 with uniform pectinate spines and an orange flower

Fig.26 *Sulcorebutia arenacea* fa. HJ1291 / Ge2 - a form that you might like to call *S. candiae*

Fig.27 *Sulcorebutia arenacea* fa. HJ1291 - with claw-shaped spines and a gorgeous golden yellow flower

Fig.28 *Sulcorebutia arenacea* var *candiae* HJ1292 / Ge5 Notice how the orange colour changes with the age of the flower to yellow.

Fig.29 *Sulcorebutia arenacea* var. *candiae* HJ1292 / Ge3 from the shores of the Laguna Pampa

will be postponed until some time in the future when more research has been done at this site. The question is: Are there two completely different plants at this location, or possibly a hybrid swarm? This we are not able to decide at the moment. We also cannot say with complete certainty if all the plants in question have been seen more or less at the same altitude or rather in the course of the climb. What seems certain now is that Jucker has discovered a great sulcorebutia population, by which we see exciting new plants for our collections.

Upon further exploration of this mountain-side Jucker found at a certain altitude again rather familiar sulcorebutias. HJ1291 and more so HJ1292 are very similar to the HJ939 found earlier. HJ1291 still has partly relatively short spines and they are quite similar to HJ1290 found 1000m lower. The spines of HJ1292 are longer and indistinguishable from HJ939. No surprise that, since the last two localities are only a little more than 1km apart. These findings naturally give rise to the suspicion that we see here an altitude-dependent development line that starts almost at the riverside with short-spined forms similar to *Sulcorebutia arenacea* changing continuously into longer spined ones higher up. On the other hand, this also means that the dark types (HJ1290a) do not fit into this line. How we

should evaluate the systematic and taxonomic consequences remains open.

By the discoveries of these two trips, we have a fairly comprehensive picture of this small section of the Ayopaya region – the mouth of Rio Negro - Rio Sacambaya. We were able to describe a new variety but still have some unanswered questions. These sulcorebutias will therefore be discussed again at a later date.

Acknowledgments

I thank especially Mr. Hansjörg Jucker, who has provided me generously with all the information and images. Thanks also to Mr Wolfgang Latin, who has once again taken the time to track down my errors and to Graham Charles for the English translation.

References

FRITZ, G., GERTEL, W. & VRIES, JOHAN DE (2008): *Kompendium der Feldnummern der Gattung Sulcorebutia* – 6. Auflage; Eigenverlag, Ingelheim – ISSN 1866–3745

GERTEL, W. (2008): Der Formenschwarm der Sulcorebutien aus dem Raum zwischen Totora und Mizque – *Echinopseen* **5**(1): 1–6

GERTEL, W. & LATIN, W. (2010): *Sulcorebutien – Kleinode aus Bolivien* – Hrsg: Deutsche Kakteengesellschaft e.V., Pforzheim

GERTEL, W. (2012): http://www.kakteenforum.com/t9157-sulcorebutia-arenacea-var-candiae

GERTEL, W. (2015): Nieuwe sulcorebutia's uit het Ayopaya-Gebeit in Bolivia. *Succulenta* **94**(1): 34–44

VRIES, JOHAN DE (2013): Neues zu *Sulcorebutia menesesii* (Card.) Buining & Donald und *Sulcorebutia glomeriseta* (Card.) Ritter. – *Echinopseen* **10**(1): 1–8

CARR, JOHN (2014): An Update on Ayopaya, Bolivia - *The Cactus Explorer* (Online) **12**: 40–43

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Rhipsalis aurea – a gem of the genus Rhipsalis

Andreas Hofacker introduces us to an unusual species of *Rhipsalis*, known for a long time but only recently named.

Photographs by the author.

The genus *Rhipsalis* with about 36 species and 13 subspecies (Hunt, 2006: 5) is widespread in tropical and subtropical regions of the Americas and the Caribbean. Only one species of cactus, *Rhipsalis baccifera* (Solander) Stearn also has a natural occurrence in the Old World (East Africa and Indian Ocean to Sri Lanka). The main distribution area of the genus is eastern Brazil.

For most cactus collectors, rhipsalis are not typical cacti. They have no spines and the flowers are tiny, inconspicuous and always white. As usual, this is only partly true. Rhipsalis are true cacti, the flowers of *Rhipsalis grandiflora* Haworth can reach a diameter up to 3cm and the flowers of other species have a yellowish tint (e.g. *Rhipsalis epiphyllanthoides* Backeberg and *R. floccosa* subsp. *pulvingera* (G. Lindberg) Barthlott & N. P. Taylor). But also, an entirely different flower colour is occasionally encountered such as the red flowers of *Rhipsalis hoelleri* Barthlott & N. P. Taylor. The latest discovery in the number of these "different colour" rhipsalis is *Rhipsalis aurea* M. F. Freitas & J. M. A. Braga. As the Latin species epithet "aurea" tells us, the flowers are of a golden yellow colour. *Rhipsalis aurea* is the only rhipsalis with really pure yellow flowers.

Described in 2009, it had already been discovered in 1959, but at that time it was not recognized as a distinct species (Freitas,

Fig.1 *Rhipsalis aurea* growing pendulously near Nova Friburgo, Rio de Janeiro, Brazil.

Fig.2 A *Rhipsalis aurea* 'tree' growing in its natural habitat near Nova Friburgo, Rio de Janeiro, Brazil.

Fig.3 *Rhipsalis aurea* with its golden flower buds.

Fig.4 *Rhipsalis aurea* with its golden flower buds.

Calvente & Braga, 2009). The three locations mentioned in the first description are situated in the Serra dos Orgãos (Organ Mountains) in the Brazilian state of Rio de Janeiro, southwest of the city of Nova Friburgo. Two of the three mentioned localities are at risk of extinction because of agricultural use.

The author now knows of four other localities in the region of Nova Friburgo where the plants can be found. All localities are situated at altitudes between 1200m and 1700m in the Mata Atlântica biome. The previously known distribution extends over an area of 30km x 15km. It is expected that within this poorly researched area, there are further occurrences where this attractive species can be found.

Rhipsalis aurea belongs to the subgenus *Erythrorhipsalis* (branches round to slightly edged, ribbed, flower pendulous, bell-shaped, with 8–18 perianth-segments, flower buds not breaking through the epidermis). Its nearest relative is *Rhipsalis pulchra* Löfgren. *Rhipsalis aurea* grows rupicolously or epiphytically, the branches are 60–80cm long, the roots are stiff, greyish-white, and adventitious roots are absent. The branches grow suberect to almost horizontal or slightly pendent, erect when young, branching is subacrotonic or mesotonic. The stem segments are cylindrical; primarily of indeterminate growth, basal 15–45cm long, 4–6mm diam., suberect, stiff, woody; subsequently 3–4, 14–20cm long, 3.7–4.7mm diam., suberect, stiff but succulent, dark green; secondary smaller, of determinate growth, 2–9cm long, 1.2–3mm diam., pendent, succulent, dark green.

The areoles are ca. 0.5mm in diam., green, reddish or brown; with 12 scales, ca. 0.5 x 1mm, triangular; hairs are absent in mature segments and present in young segments. Flowers are 1.6–1.7cm x 1.5–2cm at anthesis, campanulate, not conspicuously immersed in

Fig.5 The more or less campanulate flower of *Rhipsalis aurea* before anthesis.

Fig.6 The flower of *Rhipsalis aurea* at full anthesis.

Fig.7 The flower of *Rhipsalis aurea* at full anthesis.

Fig.8 The flower of *Rhipsalis aurea* at full anthesis.

the areoles; absent to 1 per areole, diurnal, inodorous, mostly subapical or lateral, oblique to slightly perpendicular to the stems; pericarpel 0.2–0.3mm x 0.4mm, green to yellow, turbinate, distinctly truncate; perianth segments golden yellow, immaculate, membranous, 0.2–1.3mm x 0.3–0.6mm, gradually longer and thinner towards the center, suborbicular, triangular to oblong, apex rounded, external spreading to suberect, internal erect. The stamens are polystichous spreading or with a discrete separation of the internal facing outwards and external facing inwards, yellow; filaments 4–7mm long; anthers 0.5–0.6mm long. The ovary is 1.7–2mm long, turbinate; the style 8mm, yellow; stigma 4–6 lobed , 2mm long, yellow, oblong, patent. The fruit is indehiscent, glabrous: when immature cupulate, strongly truncate, green; when mature 6–7.7mm x 6-8mm, depressed-globose, translucent green.

It should be mentioned that the primary shoots initially grow erect, forming little "trees" and only the secondary shoots are pendent. This kind of growth can be observed in the genus *Rhipsalis* quite often, but not so distinctly as this.

In the meantime, the first experiences have been observed concerning the cultivation of *Rhipsalis aurea* in Europe. The plants grow in habitat in quite humid conditions, often in moss and amongst other humidity preferring plants. Therefore, the plants should never dry out completely (like most other rhipsalis). A substrate with a high content of humus, which is permeable to water at the same time, is suitable.

The plants like plenty of fresh air and because of their occurrence in relatively high parts of the Mata Atlântica, they also prefer a not too hot location. Growing them in the garden in a tree is suitable. Direct sun should be avoided.

The plants grow easily and quickly from seeds or cuttings (the easiest way to propagate them). Within 2–3 years, reasonable plants can be grown.

Rhipsalis aurea flowers in Brazil in August to September, and in Europe in early summer.

A problem is an occasionally observed dying of the branches. They become black and in no time the whole plant has died. Maybe it is a fungal disease. These black branches could also be observed by the author in the natural habitat.

Nevertheless, it is hoped that *Rhipsalis aurea* will be offered much more in culture in the future, it is a very attractive plant that brings some colour to the genus *Rhipsalis*.

The author thanks Graham Charles for checking the English translation.

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Literature

Freitas, M.F., Calvente, A.M.. & Braga, J.M.A. (2009): A New Species of *Rhipsalis* (Cactaceae) from Brazil. *Systematic Botany* **34**: 505–509.

Hunt, D. et al. (eds.) (2006): *The new cactus lexicon*. dh books, Milbourne Port.

Travel with the cactus expert (13)

Zlatko Janeba continues his tour of the American Southwest. Reading his account just makes you wish you had been there to see the wonders of this succulent wilderness.

Photographs Zlatko Janeba, desert-flora@seznam.cz.

Fig.1 Group photo in the morning (Josef Busek, me, Marta, and Arpad), Castle Valley, Utah.

Fig. 2 *Yucca harrimaniae* in flower, Onion Creek, Utah. Attractive plants with rosettes wider than taller.

Castle Valley is a small town about 16 miles NE of Moab in Grand County, Utah. Castle Valley is also a beautiful red rock canyon sitting in a gorgeous landscape of southeastern Utah. Castle Valley is decorated with Priest, Nuns, and Castle Rock, quite familiar red sediment formations, seen in several movies. And I am lucky to have friends living in Castle Valley.

It was 9th May 2006 when Arpad, a friend of ours living together with Marta in Castle Valley, had prepared for us a trip to the La Sal Mountains, rising above the Castle Valley. More specifically, we were supposed to start on Scenic Byway UT 128, then take the Onion Creek Road through the Onion Creek Narrows and the Kokopelli Trail, and finally join the La Sal Mountain Loop to get back to Castle Valley. And it sounded to us like a great one day trip.

La Sal Mountains, which are located in the vicinity of Moab, are part of Manti-La Sal National Forest and of southern Rocky Mountains. They are the second highest mountain range in Utah (reaching up to almost 3,900m). These alpine mountains with beautiful pine and aspen forests, bubbling brooks, and red rock canyons below, represent a popular destination for those who love mountain biking, hiking, horseback riding, camping, fishing, bird watching, and other outdoor activities.

We took a picture of ourselves as the first thing in the morning after breakfast [Fig.1]. Then we got on Arpad's truck and headed to the field. We took UT 128 and then the Onion Creek Road. Along it, we could see numerous *Yucca harrimaniae*, all decorated with numerous broadly campanulate flowers, that were densely arranged on their racemose inflorescences [Fig.2]. Furthermore, *Sclerocactus parviflorus* can be found there, although it is

Fig.3 Flowering *Sclerocactus parviflorus*, Onion Creek, Utah.

Fig.4 *Opuntia trichophora* with typical yellow flower along the Onion Creek, Utah.

Fig.5 Detail of *Sclerocactus parviflorus* in full flower, Onion Creek, Utah.

Fig.6 Nice compact rosette of *Yucca harrimaniae* with long curly white filaments in La Sal Mountains, Utah.

more common on rocky outcrops at slightly higher elevations. We encountered sclerocacti from the lowest elevation up to some 2,000 m. Also *S. parviflorus* was in full flower [Fig.3], usually bearing copious pinkish large flowers.

At several places we could also observe a yellow flowering opuntia species with very attractive long white spination, called *Opuntia trichophora* [Fig.4]. It is closely related to *Opuntia polyacantha* and is often considered as its variety or even its synonym. It quite resembles *O. polyacantha* var. *erinacea* but its areoles are smaller and closer together. The spines of *O. trichophora* are quite slender, flexible, almost hair-like, although the centrals are stiffer. It is a drought tolerant species, growing mostly on hot exposed rocky slopes

Fig.7 An old branched specimen of *Sclerocactus parviflorus*, Onion Creek, Utah.

of the

Fig.8 Flowering mounds of *Echinocereus triglochidiatus* ssp. *mojavensis* on a sandy hill, La Sal Mountains, Utah.

Fig.9 Close-up of magnificent flowers of *Echinocereus triglochidiatus* ssp. *mojavensis*, La Sal Mountains, Utah.

Colorado Plateau. It is reported from southern Wyoming, Utah, western Colorado, northern Arizona, New Mexico, and the trans-Pecos in Texas.

Later we saw more populations of *Sclerocactus parviflorus* in full flower [Figs.5&7]. The sclerocactus populations appeared to be in very good shape. Plants of all sizes (from tiny seedlings up to old branching specimens) were present there, bearing numerous pink flowers and buds. Also *Yucca harrimaniae* was quite common and their rosettes seemed to be smaller, more compact and more beautiful with increasing elevation [Fig.6]. But yuccas were variable enough and various forms could be observed at various places. These forms differ in the length and width of the leaf blades and in the amount of white hair (better described as filaments) among their leaves, which make these yuccas so especially attractive for plant enthusiasts. We were also

Fig.10 Yuccas growing on the edge above a canyon in La Sal Mountains, Utah.

Fig.11 Flowering *Sclerocactus parviflorus* at higher elevations of La Sal Mountains, Utah.

Fig.12 *Pediocactus simpsonii*, the first specimen we saw that day in La Sal Mountains, Utah.

able to collect a few black yucca seeds.

Juniper and pine trees became more widespread at higher elevation and there, among the sparse low trees, we enjoyed flowering mounds of *Echinocereus triglochidiatus* ssp. *mojavensis* [Fig.8]. Their bright orange-red flowers make them visible from a long distance. I keep admiring these splendid flowers, especially the colour combinations: orange-red to claret red tepals (from there the common name claret-cup cactus originates), yellowish bases of inner tepals, pink to purple anthers and green stigma [Fig.9]. And even at this elevation (some 2,000m) we could see flowering plants of *Sclerocactus parviflorus* [Fig.11].

Along the way we could appreciate nice views of the mountains around [Fig.10]. At one spot we disturbed a tiny Pigmy Short-horned Lizard (*Phrynosoma douglasii*), which was apparently not too much afraid of us. This funny reptile has a very large distribution

Fig.13 A view across the valley below from near the Fisher Mesa, La Sal Mountains, Utah.

Fig.14 *Pediocactus simpsonii* decorated with beautiful white flowers at an elevation of some 2500m in La Sal Mountains, Utah.

range, from southern Canada down to central Mexico. It is a typical montane species.

And there we also started to see the first *Pediocactus simpsonii* [Fig.12]. But certainly the most beautiful pediocacti we could see at the highest elevations of our journey, in the forest formed by stately Ponderosa pines (*Pinus ponderosa*) with their unmistakable vanilla scent. There, at elevation of some 2,500m, on the sunny places among the tall pine trees we observed large old pediocacti in full flower [Fig.14]. The plants usually had white spination and almost white flowers. They often had a diameter of some 20cm, the largest even 25cm. The pine needles had to be removed from the cacti in order to be able to shoot a nice picture but it was well worth taking the time.

Before finishing the loop and returning to Castle Valley we made a stop near the Fisher Mesa. There was a small pull-off just before the gravel road turned into a paved one. That place is quite popular among visitors as you can admire there pretty well preserved dinosaur tracks. They are clearly visible and they are very large. Some of them were still holding water, probably from recent rains. It is an impressive feeling to walk in a place where these giant prehistoric creatures used to roam the Earth. And as a bonus, there were also wonderful views of the valleys below [Fig.13].

It was a great round trip through the La Sal Mountains. We enjoyed flowering cacti and yuccas, ancient dino tracks and wonderful landscape. And in the evening we enjoyed some local IPAs and stouts. Just a perfect day!

Zlatko Janeba

A new Echinocereus taxon with red flowers from the Trans Pecos area of Texas.

Wolfgang Blum, Traute & Jörn Oldach

Photographs by the authors

After the monograph *Echinocereus* was published we took a closer look at the population *E. coccineus* G. Engelmann resulting in doubts of the form Blum & al listed locations of *E. coccineus* subsp. *aggregatus*.

Field studies at the Type Locality of ,,*aggregatus* '' near Santa Rita east of Silver City and north of it, must be considered as *E. santaritensis*. This has been confirmed by different field explorers.

The existing habitats in the southeast of New Mexico and western Texas then without names were examined for several years.

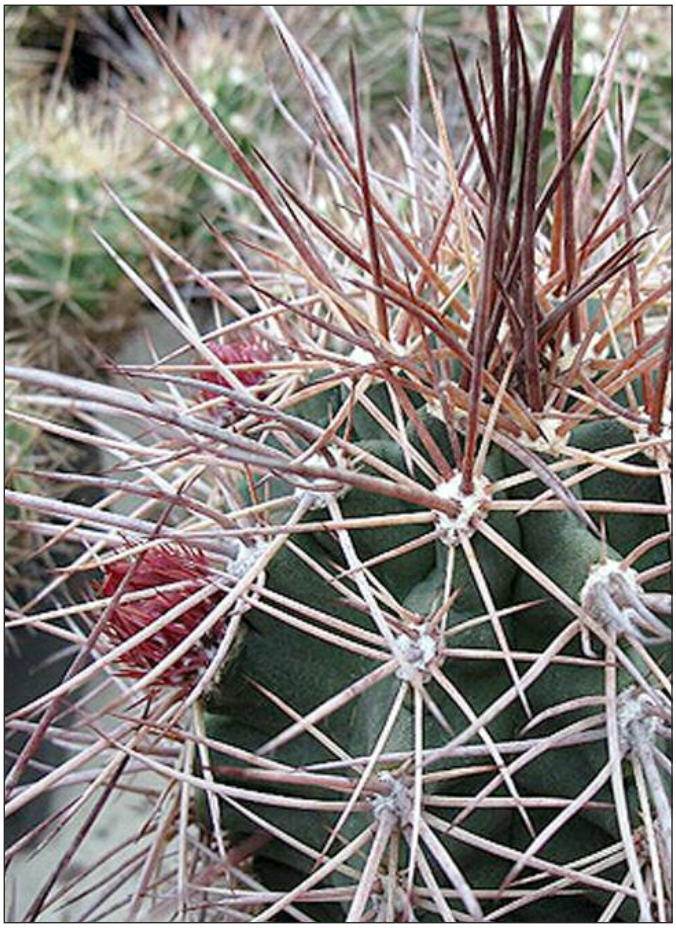
The large quantity of herbarium material and habitat photographs were evaluated and compared with *E. coccineus* subsp. *rosei* (E.O. Wooton & P.C. Standley) W. Blum & J. Rutow and subsp. *paucispinus* (G. Engelmann) W. Blum, M. Lange & J. Rutow.

An important and significant feature in the rank of a subspecies were the extensive studies of the spine surface made by us for some years.

In December 2014, following an initiative by Traute and Joern, recordings of spine-SEM-images were created.

These SEM images proved what had been seen before under the microscope.

The population of the Trans-Pecos area, the adjacent northern Mexico and southeastern New Mexico have an incipient trichome formation.



Figs.1&2 *E. coccineus* subsp. *transpecosensis*. Texas, Hudspeth County, north of Sierra Blanca.

Figs.3&4 *E. coccineus* subsp. *transpecosensis*. Texas, Hudspeth County, north of Sierra Blanca.

Figs.5&6 *E. coccineus* subsp. *transpecosensis*. Texas, Hudspeth County, north of Sierra Blanca.

Figs.7&8 *E. coccineus* subsp. *transpecosensis*. Texas, Hudspeth County, north of Sierra Blanca.

Fig.9 Female flower

Fig.10 Male flower

Figs.11&12 *E. coccineus* subsp. *transpecosensis*. Texas, Hudspeth County, north of Sierra Blanca.

Taxon	*E. coccineus* subsp. *rosei*	*E. coccineus* subsp. *transpecosensis*	*E. coccineus* subsp. *paucispinus*
STEM			
shape:	group-clump-forming, - 30 stems - 50cm in diameter	group-clump-forming, - 300 stems - 80cm in diameter	group-clump-forming, - 20 stems - 50cm in diameter
height / diameter:	- 400 / 50 – 70	100 – 400 / 50 – 100	150 – 400 / 60 – 100
epidermis colour:	green	dark green	dark green
rib shape:	slight bumps	slight bumps	light bumps
rib number:	8 – 12 / 5 – 13	7 – 11 / 10 – 20	5 – 7 / 10 – 20
width / height	8 – 15 / 10 – 20	15 – 20 / 15 – 30	- 20 / 15 – 30
root:	fibrous, branched	fibrous, branched	fibrous, branched
characteristics		stems often purple	
SPINES			
areole shape:	round	round - oval	round - oval
length / width / distance apart:	2 – 4 / 2 – 4 / 10 – 15	4 – 6 / 3 – 5 / 10 – 20	4 – 6 / 2 – 4 / 15 – 20
radials number / length:	7 – 12 / 3 – 20	6 – 11 / 5 – 30	3 – 7 / 30 – 40
radials colour:	white - brown, becoming grey	brownish - brown, becoming grey	brownish, becoming grey
radials arrangement / shape:	adpressed, spreading/ stiff, straight, round	adpressed, spreading/ stiff, straight, round	slightly projecting, spreading/ stiff, straight, round
centrals number / length:	4 – 6 / 10 – 80	1 – 4 / 10 – 60	0 – 1 / 10 – 30
centrals colour:	brownish - black, becoming grey	brownish - black, becoming grey	brownish - brown, becoming grey
centrals arrangement / colour:	projecting / stiff, straight, round	projecting / stiff, straight, round	projecting / stiff, straight, round
spine surface:	serrated [SEM, Oldach 01/2015]	serrated, with incipient trichome formation [SEM, Oldach 12/2014 & 01/2015]	significant tuberculate surface (trichome) [SEM, Oldach 01/2015]
FLOWER			
flowerbud:	red, spined, roundish	red, spined, roundish	red, spined, sharp - roundish
flower shape:	short-tubular	short-tubular	short-tubular
flower length / diameter:	50 – 65 / 45 – 60	40 – 70 / 40 – 80	40 – 60 / 30 – 50
flower colour:	orange - red, throat yellow - light red	orange - red, yellow throat	orange - red, bright throat - yellowish
tube length / diam.	15 – 35 / 8 – 20	20 – 30 / 12 – 20	20 – 25 / 10 – 20
tube colour:	green, reddish tinged	green, brownish above	green, reddish above
ovary length / diam.	10 – 20 / 8 – 15	15 – 20 / 12 – 17	10 – 15 / - 10
ovary colour:	green	green	green, reddish above
spine number / length:	5 – 15 / 5 – 15	5 – 8 / 10 – 20	3 – 7 / 5 – 15
colour:	white - brownish, dark-tipped	white, dark-tipped	white, dark-tipped
wool length:	white / - 2	white / - 2	white / - 2
petal length/ width:	20 – 30 / 5 – 15	25 – 40 / 3 – 12	30 – 40 / 5 – 12
nectar chamber length / width:	6 – 10 / 3 – 5	4 – 8 / 3 – 5	5 – 8 / 3 – 5
filaments:	10 – 35	20 – 30	10 – 35
length / colour:	below white, pink top - red	whitish, pink top - purple	below white, purple top

Table 1 Comparison of the subspecies of *E. coccineus*. The significant differences are highlighted in green. cont./

Taxon	*E. coccineus* subsp. *rosei*	*E. coccineus* subsp. *transpecosensis*	*E. coccineus* subsp. *paucispinus*
anther colour / pollen colour:	purple / yellow - orange	purple / yellow - orange	violet / yellow
style length / width / colour:	37 – 45 / 1.0 – 1.5 / white - greenish	30 – 40 / - 2 / yellowish	30 – 40 / 1.5 – 2 / greenish
stigma lobe number / colour:	8 – 11 / 4 – 6 / green	6 – 14 / 4 – 6 / green	8 – 10 / 5 – 9 / green
characteristic:	plants dioecious	plants dioecious	plants dioecious
FRUIT			
shape / maturity time:	round - oval / 2 – 2.5 months	round - oval / 2.5 months	round - oval / 2.5 months
fruit length / diam:	20 - 25 / 15 - 25	25 - 40 / 20 - 35	25 - 35 / 20 - 30
fruit colour:	yellowish pink - orange	reddish brown - pink	pink - orange - redish
pulp:	white	white	white
characteristic:	splitting	splitting	non splitting, drying up
SEED			
length / width / colour:	0.9 – 1.1 / 0.8 – 1.0 / black	1.5 – 1.7 / 1.1 – 1.3 / black	1.4 – 1.6 / 1.0 – 1.2 / black
microstructure:	perforated Testa, warts connected by cell boundary lines	perforated Testa, warts connected by cell boundary lines	perforated Testa, warts connected by cell boundary lines
wart form:	flat	flat	flat
cuticle:	fine cuticular convolution	fine cuticular convolution	coarse cuticular convolution
chromosome no:	2n = 44 (tetraploid)	2n = 44 (tetraploid)	2n = 44 (tetraploid)
HABITAT			
range:	**USA: New Mexico:** Dona Ana-, western Otero Counties **Mexico: Chihuahua:** north of Ricardo Flores Magon, Sierra Candelaria, Sierra San Ignacio*	**USA: New Mexico:** eastern Otero-, southern Lincoln-, Chaves- and Eddy Counties **Texas:** Brewster-, Crockett-, Culberson-, eastern Hudspeth-, Jeff Davis-, Pecos-, Presidio-, Terrell-, western Val Verde Counties **Mexico:** Coahuila (Sierra del Carmen), Chihuahua (Sierra la Amargosa, Sierra el Ocotillo)	**USA: Texas:** Coke-, Edwards-, Kerr-, Kimble-, Kinney-, Mason-, Real-, Schleicher, Sutton-, Tom Green-, Uvalde- and eastern Val Verde Counties
terrain:	shrubby semi-desert - rocky, wooded slopes	shrubby semi-desert - rocky, wooded slopes	shrubby semi-desert
soil:	granite, limestone, rhyolite, humus wells	limestone, humus wells	limestone
altitude:	1200 - 1700m above sea level	700 - 2400m above sea level	150 - 650m above sea level

Table 1 (cont.) Comparison of the subspecies of *E. coccineus*. The significant differences are highlighted in green.
* We see these locations as transitional populations. Dimensions in mm unless otherwise stated.

Based on these results we decided to describe the population between the Sierra Blanca Hudspeth County in the West, Ozona Crockett County in the East, the Captain Mountains Lincoln County in the North, the Chisos mountains Brewster County as well as the Sierra del Carmen Coahuila Mexico in the South.

We do not recognize the spine surface (present of trichomes) as a species characteristic.

The following subspecies of *E. coccineus* have a smooth striated spine surface: subsp. *coccineus* and subsp. *rosei*.

The following subspecies of *E. coccineus*

have a significant tuberculate spine surface: subsp. *paucispinus* and subsp. *roemeri*.

The here now formally newly described subsp. *transpecosensis* has a smooth striated spine surface with incipient tuberculate.

We see this as a link between the subspecies.

***Echinocereus coccineus* Engelmann subsp. *transpecosensis* W. Blum, T. & J. Oldach subsp. nov.**

Holotype

USA: Texas: Hudspeth County, north of Sierra Blanca, POWELL, A.M. & POWELL, S.A. 6240, 18 April 1998 [SRSC (unnumbered)]

Etymology

Named after its main distribution area, the Trans-Pecos region.

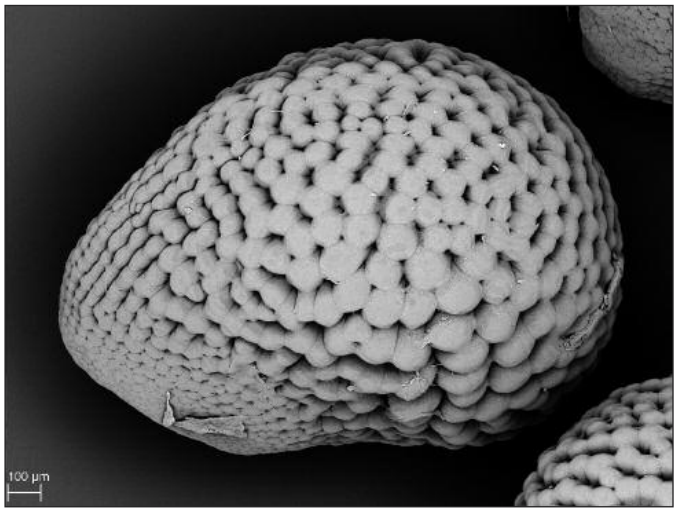
English Diagnosis

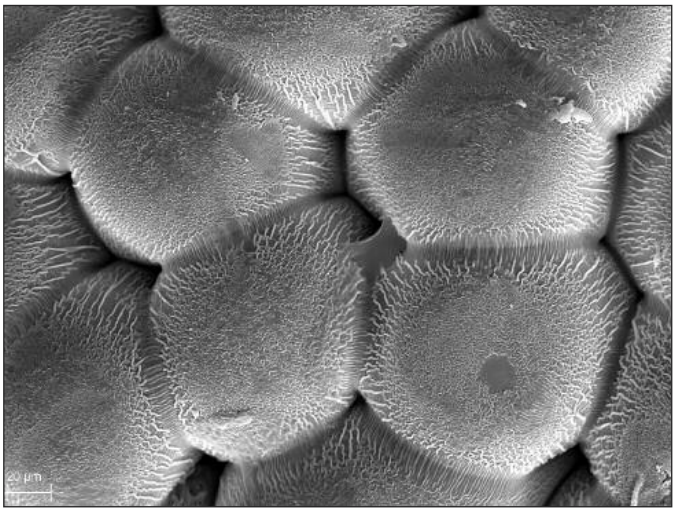
subsp. *transpecosensis* differs from subsp. *paucispinus* by:

- more ribs: subsp. *transpecosensis* 7 – 11 subsp. *paucispinus* 5 – 7
- more spines: subsp. *transpecosensis* 6 – 11, subsp. *paucispinus* 3 – 7
- more central spines: subsp. *transpecosensis* 1 – 4, subsp. *paucispinus* 0 – 1,
- by higher altitude distribution: subsp. *transpecosensis* 700 – 2400m above sea level, subsp. *paucispinus* 150 – 650m above sea level
- by west to north-western area of distribution.
- its divergent spine surface (cuticle)

subsp. *transpecosensis* differs from subsp. *rosei* by:

- more spines: subsp. *transpecosensis* 6 – 11, subsp. *rosei* 7 – 12
- less central spines: subsp. *transpecosensis* 1 – 4, subsp. *rosei* 4 – 6,
- by significantly larger seeds: subsp. *transpecosensis* 1.5 – 1.7mm long, subsp. *rosei* 0.9 – 1.1 mm long
- by its more western area of distribution
- its divergent spine surface (cuticle)

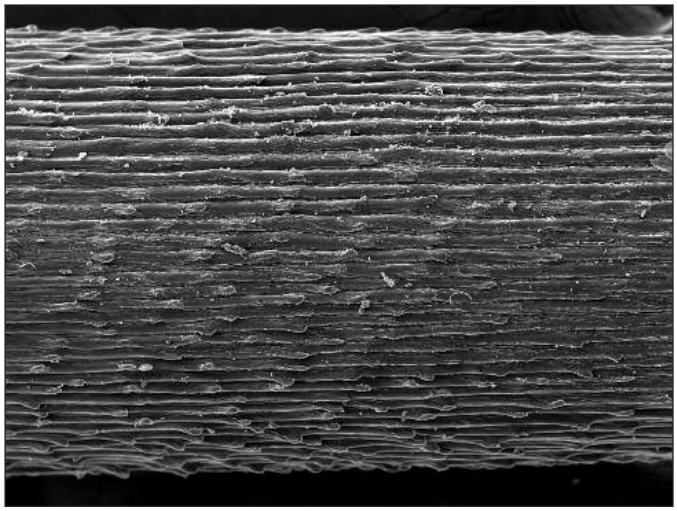


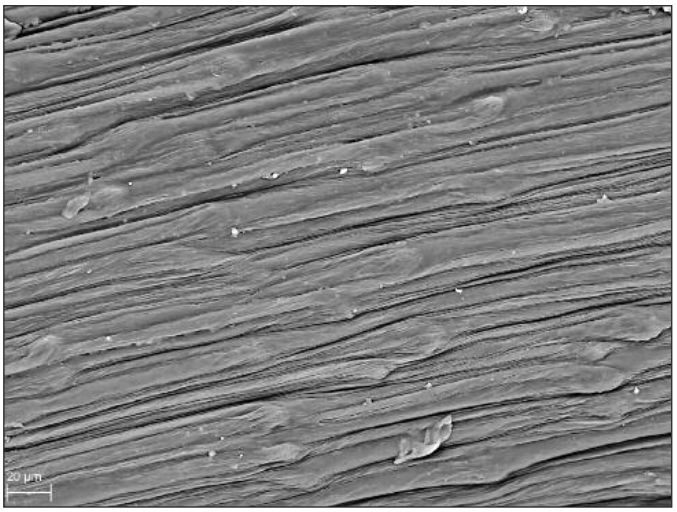


Figs.13&14 Seed images of *E. coccineus* subsp. *transpecosensis*. Texas, Hudspeth County, north of Sierra Blanca. (x 60 and x 360) Pictures: Rudolf Hünert

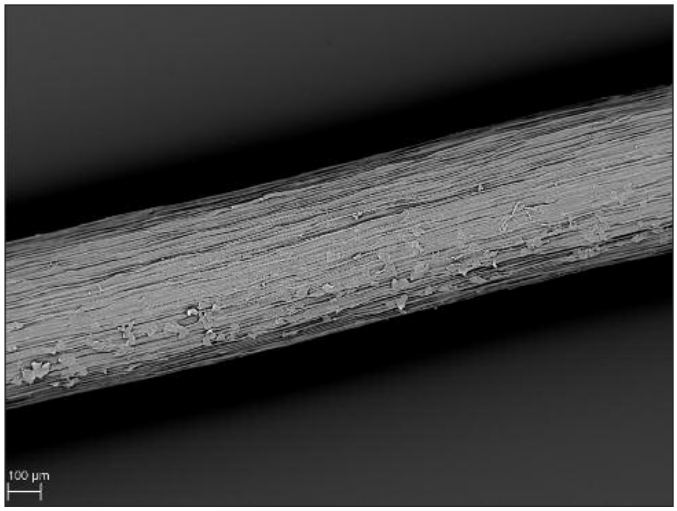
Fig.15 Holotype: *E. coccineus* subsp. *transpecosensis*. A. Michael Powell Herbarium Department of Biology, Sul Ross State University, Alpine, Texas. http://www.sulross.edu/pages/3068.asp

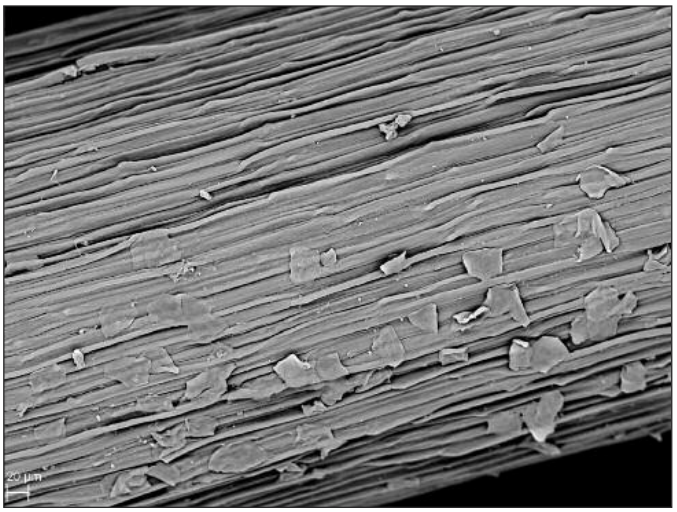
SEM images of the spine surfaces of the subspecies of *E. coccineus*.



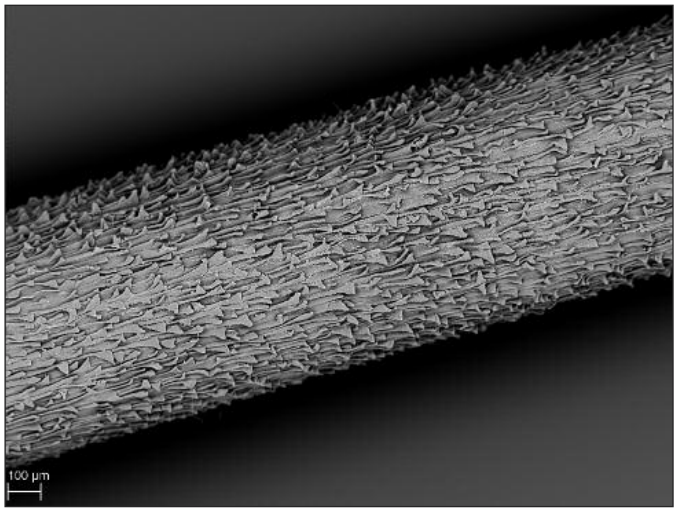


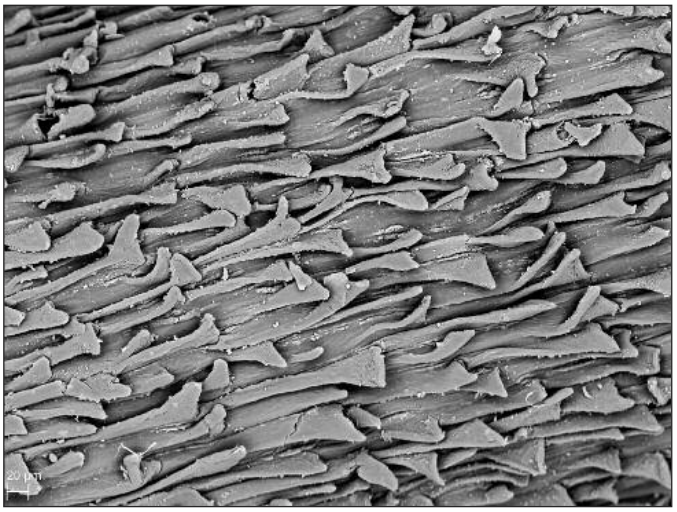
Figs.16&17 *E. coccineus* subsp. *transpecosensis*, Texas, Hudspeth County, north of Sierra Blanca.
[x 100 Picture: Cay Kruse and x 500 Picture: Rudolf Hünert]



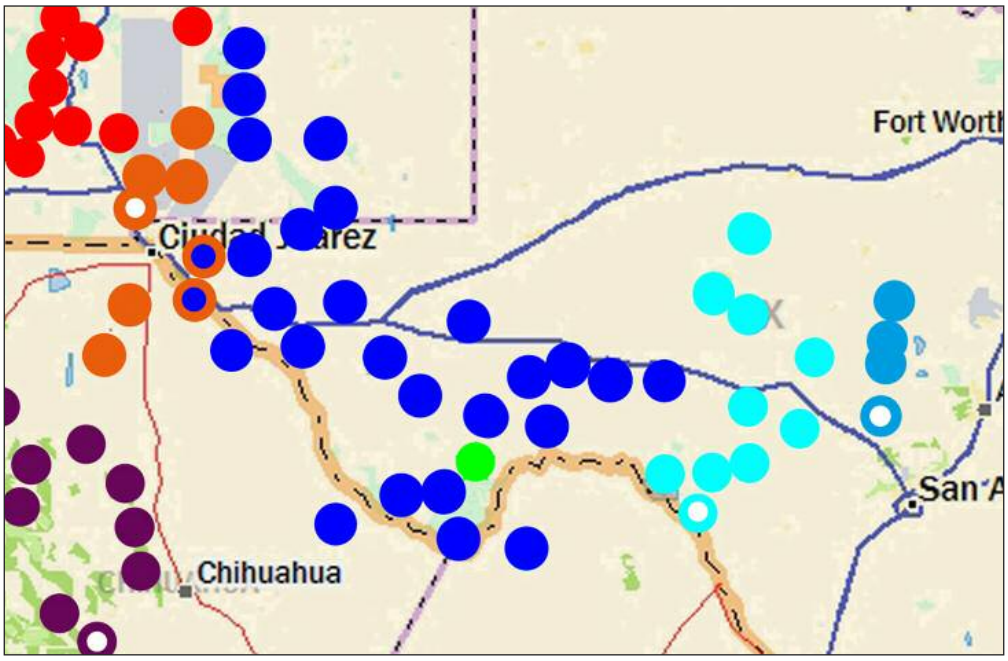


Figs18&19 *E. coccineus* subsp. *rosei*, Chihuahua, north of Ricardo Flores Magon
[x 150 and x 500, Pictures: Rudolf Hünert] Note the accumulation of dirt.





Figs.20&21 *E. coccineus* subsp. *paucispinus*, Texas, Val Verde County, Del Rio
[x 150 and x 500, Pictures: Rudolf Hünert]



Map. 1 Distribution of members of the *E. coccineus* group in Texas and adjacent areas.
white dots = type localities
red spot = *Echinocereus coccineus* subsp. *coccineus*
cyan spot = *Echinocereus coccineus* subsp. *paucispinus*
medium blue = *Echinocereus coccineus* subsp. *roemeri*
orange spot = *Echinocereus coccineus* subsp. *rosei*
orange spot with blue dot = Transition form between subsp. *rosei* and subsp. *transpecosensis*
blue spot = *Echinocereus coccineus* subsp. *transpecosensis*
green spot = *Echinocereus gurneyi*
violet spot = *Echinocereus polyacanthus*

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MO (Herbarium Missouri Botanical Garden)
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A&M University)
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References

BACKEBERG, C. (1960): *Die Cactaceae*, Band IV, Cereoideae: 1970 – 2083. - VEB Gustav Fischer Verlag, Jena
BACKEBERG, C. (1963): *Die Cactaceae*, Band VI: 3845 – 3856. - VEB Gustav Fischer Verlag, Jena
BENSON, L. (1982): *The Cacti of the United States and Canada*. - Stanford University Press, Stanford, California
BLUM, W., LANGE, M., RISCHER, W. , RUTOW. J. (1998): *Echinocereus*. J. Rutow, Selbstverlag, RUTOW, Aachen
BLUM, W. (2014): Trichom - was ist das? - *Ecf.*: **27**(49: 119 - 123
BIGELOW, J.M. (1857): Additional notes and corrections. - *Pacific Railroad Reports*, Vol. IV: addenda
BÖHM, G. & G. (2008): Tortugas Mountains - ein herlicher Kakteenstandort direkt am Stadtrand. - *Ecf.*: **21**(2): 32 - 37
BRITTON, N.L. & ROSE, J.N. (1920): *The Cactaceae*, Vol. II: 11, 115. - Publication No. 248 of the Carnegie Institution of Washington
BRITTON, N.L. & ROSE, J.N. (1922): *The Cactaceae*, Vol. III : 3 – 44. - Publication No. 248 of the Carnegie Institution of Washington
BRITTON, N.L. & ROSE, J.N. (1923): *The Cactaceae*, Vol. IV : 47. - Publication No. 248 of the Carnegie Institution of Washington
BUXBAUM, F. (1957): Morphologie der Kakteen. In: H. KRAINZ. - *Die Kakteen*
CORBETT, T.L. (1996/97): The *Echinocereus*-Index. - published in INTERNET
COULTER, J.M. (1896): Preliminary revision of the North American species of Cactus, *Anhalonium*, and *Lophophora*. - *Contr.U.S.Nat.Herb.*, Vol. III., Washington 3: 355 – 462
EGGLI, U. (1993): *Glossary of botanical terms with special reference to succulent plants*. - British Cactus & Succulent Society, Richmond, Surrey
ENGELMANN, G. (1848): In: W.H. EMORY. - *Notes of a Military Reconnaissance (Notes Milit.Reconn.), Leavenworth, in Missouri to San Diego, California* App. 2
ENGELMANN, G. (1848): In: A. WISLIZENUS. - *Memoir of a tour to northern México 1846 and 1847* (Mem.Tour North.Mex.). Misc.Document no. 26, United States Senate, Washington, (Botanical Appendix)
ENGELMANN, G. (1849): In: A. GRAY. - *Plantae Fendlerianae Novi-Mexicanae, Mémoires of the American Academy* (Pl.Fendl., Mem.Amer.Acad.), ser. **2, 4**: 49 – 53
ENGELMANN, G. (1856): Synopsis of the Cactaceae of the United States and adjacent regions (Synopsis Cact.U.S.), reprinted with corrections in: - *Proceedings of the American Academy of Arts and Sciences* (Proc.Amer. Acad.) **3**: 278 – 286, 314, 345 – 346 {1857}
ENGELMANN, G. & BIGELOW, J.M. (1857): Description of the Cactaceae. In: A.W. WHIPPLE. - *Reports of exploration and surveys for a railroad from the Mississippi River to Pacific Ocean* (U.S. Senate Rept.Expl.&.Surv. R.R Route Pacific Ocean.), Botany 4: 27– 58 {1856}
ENGELMANN, G. (1859): Cactaceae of the Boundary. In: W.H. EMORY. - *Rept.U.S.and.Mex.Bound.Surv*. **2**: 32
FELIX, D. & KEPPLER, H. (2004): *Echinocereus coccineus* ssp. *aggregatus* (Engelmann ex Watson) Blum, Lange & Rutow. - *Ecf.*: **17**(3): 59 - 66
FERGUSON, D.J. (1989): Revision of the U.S. members of the *Echinocereus triglochidiati-group*. - *Cact.Succ.J. (U.S.)* **61**: 217 - 224
HOFFMANN, M.T. (1992): Functional dioecy in *Echinocereus coccineus* (Cactaceae): breeding system, sex ratios, and geographic range of floral dimorphism. - *American Journal of Botany* **79** (12): 1382 - 1388
HUNT, D.R. (1992): *CITES Cactaceae Checklist*. - Royal Botanic Gardens, Kew & International Organisation for Succulent Plant Study: 52 – 55
HUNT, D.R. (2006) : *The New Cactus Lexicon*, Vol. 1 & 2. - dh books. Milbourne Port
HUNT, D.R. (2013) : *The New Cactus Lexicon*, - dh books. Milbourne Port

KEARNEY, T.H. & PEEBLES, R.H., and collaborators (1951): *Arizona Flora* (Ariz.Fl.): **571**, t. 28. -University California Press Berkley a Los Angeles

LANGE, M: (2004): Notizen zu *Echinocereus santaritensis* Blum & Rutow und *Echinocereus coccineus* ssp. *aggregatus* (Engelmann ex Watson) Blum, Lange & Rutow. - *Ecf.*: **17**(3): 67 - 72

LINDSAY, G.E. (1967): Los Echinocereus de Baja California. - *Cact.Succ.Mex.* **12** (4): 71 – 88, Órgano de la Sociedad Mexicana de Cactología, A.C.

MARSHALL W.T. & BOCK, T.M. (1941): *Cactaceae*: 117 – 119. - Abbey Garden Press, Pasadena, California

RISCHER, W. & Felix, D. (2006): *Echinocereus santaritensis* Blum & Rutow. - *Ecf.*: **19**(3) 88 – 100

RUEMPLER, T. (1886): In FOERSTER. - *Carl Friedrich Förster's Handbuch Cacteenkunde* (Handb.¬Cacteenk.), ed. 2: 775 – 834. Verlag von Im.Tr. Wöller, Leipzig

STANDLEY, P.C. (1908): Some Echinocerei of New Mexico. - *Bull.Torr.Bot.Club* **35**: 77 - 88

TAYLOR, N.P. (1985): The Genus *Echinocereus*, A Kew Magazine Monograph. - Collingridge Books in association with The Royal Botanic Gardens, Kew

TAYLOR, N.P. (1994): Ulteriori studi su *Echinocereus* 13 (4) Supplemento al Fascicolo: 79 – 96. - *Piante Grasse*, Speciale 1993

TAYLOR, N.P. (1997): In: HUNT. - *Cactaceae Consensus Initiatives* (Cact.Cons.Init.) **3**: 8 – 14

WOOTON, E.O. & STANDLEY, P.C. (1915): Flora of New Mexico. - *Contr.U.S.Nat.Herb.* 19: 454 – 457

A day in Baja California

John Pilbeam recalls a memorable experience when he visited the Isla Santa Catalina, an island off the east coast of Baja Califonia Sur and home to the largest species of ferocactus, *F. diguetii*. Photographs by David Neville except where shown.

A couple of years ago we (David Neville, Derek Bowdery and I) were asked if we would like to accompany our ex-pat Canadian friends living in Oaxaca, Mexico, on a trip to the peninsula of Baja California. Derek and I, in company with Bill Weightman, had been on several forays into this wonderful part of Mexico, since our first venture there in 1981, and the call from its wild parts pulled strongly on our memories to the extent that we immediately said we would be pleased to do so, and our more recent travelling companion, the more youthful David Neville, was invited to carry our bags, well mine at least, which he agreed to do.

We left the travel arrangements in David's capable hands, and he found the cheapest way to get to our agreed starting point, La Paz, the capital of the southern half of the peninsula, was via New York, thence to Mexico City, and then to La Paz. On the last leg of this 26 hour journey I for the first time ever fell asleep on the plane, sheer exhaustion overtaking me.

We were welcomed at the airport by Jim Peck and Mary McLenahan, the aforesaid resident in Mexico friends, and repaired to a modest hotel in La Paz to recover.

Having travelled to Baja California several times over the intervening years after our first trip, there was the feeling that we would just

Fig.1 *Ferocactus diguetii* on Isla Santa Catalina, Baja California Sur.

be travelling over familiar territory, delightful, but maybe over familiar. Not a bit of it, because unlike most of our previous trips we were unhampered by the restrictions of the motorized caravan, the choice of vehicle for many of our previous journeys, and found ourselves travelling much more frequently into the side-roads of the hinterland of this cactus and succulent heaven, getting into the more remote and mountainous areas, barred to us on most previous trips.

Fig.2 The fishing boat.

The peak of our explorations came about through Derek's desire to once again visit the Isla Santa Catalina, to which he had travelled before around the time of the millenium, without my company, since I had just previous to that planned trip, slipped on ice and broken out my right leg prosthetic hipjoint, splitting the femur in doing so, a very untimely thing to do.

We found, just south of Loreto, the fisherman who had taken Derek there previously, and he agreed to take us all on his fibreglass-hulled fishing boat, dispelling the fears I had of a small boat with oars, but presenting me with another problem in getting into the boat , which stood on a launch-trolley, with sides at about 5 feet. The fisherman seeing my limited climbing ability offered to bring a ladder. His offer was actually for a two


Fig.3 *Ferocactus diguetii* on Isla Santa Catalina, Baja California Sur, in flower.

Fig.4 *Ferocactus diguetii* in a spectacular setting on Isla Santa Catalina, Baja California Sur with *Pachycereus pringlei*.

Fig.5 A giant plant of *Ferocactus diguetii* on Isla Santa Catalina, Baja California Sur.

Fig.6 *Ferocactus diguetii* with a forest of *Pachycereus pringlei* on Isla Santa Catalina, Baja California Sur.

platformed step-ladder, not much help! But determination and strong arms overcame my poor, ageing metal-hipped legs, and I hauled myself over the gunwale and more or less fell into the boat.

The journey took nearly two hours to this small, remote, uninhabited island in the Gulf of California/Sea of Cortez, and proved to be an enjoyable experience, zipping along at a fair rate of knots. After half-falling ungracefully

Fig.7 The flowers of *Ferocactus diguetii* on Isla Santa Catalina, Baja California Sur.

Photo: John Pilbeam

Fig.8 A *Cylindropuntia* on Isla Santa Catalina, Baja California Sur.

out of the boat, I was persuaded to rest my complaining hipjoints on a makeshift couch of lifebelts laid on the unkind large-pebbled beach, and my companions disappeared into the surrounding hillsides to the huge plants of *Ferocactus diguetii* that were welcoming them.

After a short rest the pain eased off and I wandered off to look at these incredible Ferocacti, and other plants of interest including some densely spined *Mammillaria dioica*, as worthy of a subspecies name as *M. dioica* subsp. *angelensis* and subsp. *estebanensis*, from other islands in the Gulf, after which they were named, Isla Angel de la Guarda and Isla Esteban, these plants resembling those of this widespread species found in the southern extent of this species on the peninsula, with slimmer stems than most and distinctive dense brown spination.

There was also a densely, fine spined Cylindropuntia, which I later found out from Jon Rebman was probably *C. alcahes*, which we had encountered farther north in the area of Cataviña. But undoubtedly centre stage were the stunningly large plants of the Ferocactus which Derek had lusted to see once again, the largest recorded early in the 2000s at a height of four and a half metres, the plant in question

Photo: John Pilbeam

Fig.9 The flower of *Cylindropuntia alcahes* photographed near Cataviña.

having been assessed a hundred years before at four metres tall -- i.e. growing half a metre in 100 years! Its girth too is incredible at about a metre in diameter. Worth every moment of the trip this wonderful species is an absolute knockout to visit and I recommend any travellers to this wonderful, largely unspoilt peninsula to make the effort to see it so impressively in the flesh, beyond anything in the cactus world you have seen with such bulk before.

John Pilbeam

Baja California has always been a paradise for cactus enthusiasts and much has been written about the place and its plants. The California Academy of Sciences organized an expedition to the Gulf of California in 1921. Their Proceedings XII, No.30: 951–1218 described the plants they found, including *F. diguetii* which they said occurred on the islands Coronados, Carmen (frequent), Danzante, Catalina (abundant), San Diego and Ceralbo (frequent).

Among the earliest explorers, when travel was much more difficult than it is today, was Howard E. Gates. His little booklet *The Personal Tale of a Cactus Collector in Baja California, Mexico* (1930) gives a vivid impression of the trials of cactus exploration at the time.

George Lindsay, Director of the California Academy of Sciences, led an expedition to the Sea of Cortez in 1964 where *F. diguetii* was reported from Isla Carmen and Isla Santa Catalina. (Proceedings XXX, No.11: 211–242)

More up to date, and excellently illustrated are two books by Franziska & Richard Wolf. *The ferocacti of Baja California* (2004) guides us, in English as well as German, through the rich populations of ferocacti on the peninsular. Their large format book *Baja California und seine Inseln* (1999) is a beautifully illustrated guide to the cacti and to the place, but is available only in German.

The next book to look forward to has been written by John Pilbeam and is currently in production. He tells me that some of the photos in this article will be included among the 450 or so in his book called *Cacti and Succulents of Baja California* to be published by the BCSS in early summer 2015.

GC

Conservation and popularization of Cacti and Succulents at CSIR-NBRI Botanic Garden, Lucknow (India)

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It is a real treat when one finds a single location that has rich collection of cacti and succulents from different arid regions of the world. The Cacti and Succulents House in CSIR-NBRI Botanic Garden is the main attraction where more than 300 species/ varieties of cacti and succulents are displayed and conserved. These specimens have attractive shape, size, colour and are useful for ornamental purpose. Located at the heart of the 200 years old historical Botanic Garden, the old pagoda-shaped house attracts thousands of visitors every year.

Some of the important genera under ex-situ conservation in this glasshouse are - *Adenium, Agave, Aloe, Astrophytum, Cereus, Cissus, Cleistocactus, Coryphantha, Dasylirion, Disocactus, Echinocactus, Echinocereus, Echinopsis, Epiphyllum, Euphorbia, Ferocactus, Gasteria, Graptopetalum, Haworthia, Huernia, Hylocereus, Kalanchoe, Lithops, Mammillaria, Opuntia, Pereskia, Sansevieria, Sedum, Selenicereus, Stapelia, Stenocereus* and *Yucca*.

The plants are aesthetically laid out in informal beds and landscaped with pebbles and rocks in a fascinating way. It's a delight to

Fig.1 Inner view of the Cacti and Succulents House, CSIR-NBRI Botanic Garden.

Fig.2 Flowers of Cacti and Succulents in the house.

see the beautiful bright flowers in the months of March and April, sometime till July. The plant house also conserves rare and threatened species such as *Aloe harlana*, *Coryphantha maiz-tablasensis*, *Dracaena draco*, *Echinocactus grusonii* and *Euphorbia cylindrifolia*. Around 25 species in the plant house are in the IUCN Redlist. The major attraction of the Cacti and Succulents House is the majestic living specimen of *Welwitschia mirabilis*. This Botanic Garden is the only custodian of this bizarre plant in the entire South Asia.

Native Succulents of India

Important Indian succulents have also been conserved in the plant house. Medicinally important succulents such as *Euphorbia neriifolia*, *Plectranthus amboinicus* and *Aloe vera* have been displayed and conserved. *Hoya wigthii*, the pendulous wax flower known for its beautiful flowers is conserved in the Cacti and Succulents House. It is a climber endemic to Western Ghats. It bears very attractive cream coloured flowers with triangular pointed petals and fleshy lobes of a corona which are purple in colour.

Fig.3 A magnificent tree of *Beaucarnea recurvata* in full bloom at the rear of the Cacti and Succulents House, CSIR-NBRI Botanic Garden.

Learning Centre

The Cacti and Succulents House gives opportunities to the students and visitors for study and identification of remarkable shapes and forms of xerophytes. The plant specimens are bilingually labelled with information on their nativity, family and common names for easy identification and acquaintance with this group of plants. It's a unique facility to know about both cacti and succulents at one place which compliments educational courses.

Popularization of Succulents as landscape plants

Like perennial trees, succulents are also used in landscaping projects in urban and sub-urbans. With their varied morphological forms and attractive flowers, succulents improve the overall look of the landscape. The spectacular layout of the plant beds in the Cacti and Succulents House are designed in such a way that one can easily plan and plant an impressive display of succulents in your garden. Use of genera such as *Adenium*, *Agave*, *Dracaena*, *Beaucarnea*, *Cereus*, *Pereskia*, *Kalanchoe*, and *Yucca* in outdoor landscaping can change the look of gardens dramatically. A rockery with variegated species of *Agave* and *Sansevieria* at the corner of the garden with other succulents such as *Graptopetalum*, *Kalanchoe* etc. produces an impressive landscape display.

Dracaena draco, the Canary Islands 'dragon tree', is widely used as an ornamental tree for parks and gardens. *Beaucarnea recurvata* is another species which has an elegant trunk with a crown of leaves at the apex. Though rare in occurrence, the inflorescence of this plant has a spectacular appearance.

The Cacti and Succulents House of CSIR-NBRI, Lucknow, therefore, serves as a centre of conservation and popularization of cacti and succulents besides fulfilling educational requirements.

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Nicaraguan Field Notes (4)
Rio Olama

Leland Smith describes his visit to the Rio Olama where he saw trees filled with ephiphytes including cacti.

In December of 2014 I was in Boaco in central Nicaragua and I managed to get away one morning to do some field work. I particularly wanted to get back to Rio Olama near the Matagalpa/Boaco departmental border, to a site I visited in 2010. I had taken some cuttings there that later flowered and were identified as *Epiphyllum phyllanthus* ssp. *rubrocoronatum*, previously know to be native only to Panama and northern South America. I re-located the plants [Fig.2] growing on trees by the side of the road. Cuttings taken on the first trip grew out to produce the flowers [Fig.1] which confirmed the species identification.

Fig.1 The flower of *Epiphyllum phyllanthus* ssp. *rubrocoronatum* grown from original cuttings from this place

Fig.2 *Epiphyllum phyllanthus* ssp. *rubrocoronatum* growing on a tree near the road

Fig.3 Selenicereus growing on a tree overhanging the river, intermingled with Spanish Moss

Fig.4 *Selenicereus hondurensis*

As I have studied the native cactus I have developed what I call my "Pet Theories". Pet Theory 2 was developed here and states that in the poorly documented world of Nicaraguan cacti, any species listed as native to the moist lands to the south (Costa Rica and Panama) has a good chance of also being found in eastern Nicaragua. Time and research will determine to what degree this is true.

Also in this area were some selenicereus growing on a tree overhanging the river, intermingled with Spanish Moss [Figs.3 & 4]. Originally I though these might be *S. grandiflorus* because one source listed this as being native to Nicaragua, but this time I was able to get a specimen to study up close. The stems have 9 wings and the areoles are on raised portions of the stem, so this may better fit the description of *S. hondurensis*, listed in several books for Honduras and Guatemala. As I researched this, I found that several sources list this as a subspecies of *S. grandiflorus*, so this may be the source of some of the confusion. In any case, I`m back to potting up the cuttings and growing them out until they flower for a positive identification.

The terrain to and from Rio Olama had a noticeable lack of terrestrial cacti, but plenty of rhipsalis and hylocereus, as well as other epiphytes—philodendron, ferns, peperomia, orchids, and bromeliads.

Epiphytes live by gathering organic matter on the trees and minerals from the dust in the air, with mists and drizzle being more beneficial than hard rains. Once one epiphyte starts accumulating arboreal soil on a given tree, it seems other epiphytes will follow, resulting in some old trees being covered with different species from different families [Figs.5 & 6].

This moist region seems to be epiphyte rich and deserves more thorough investigation.

Leland Smith

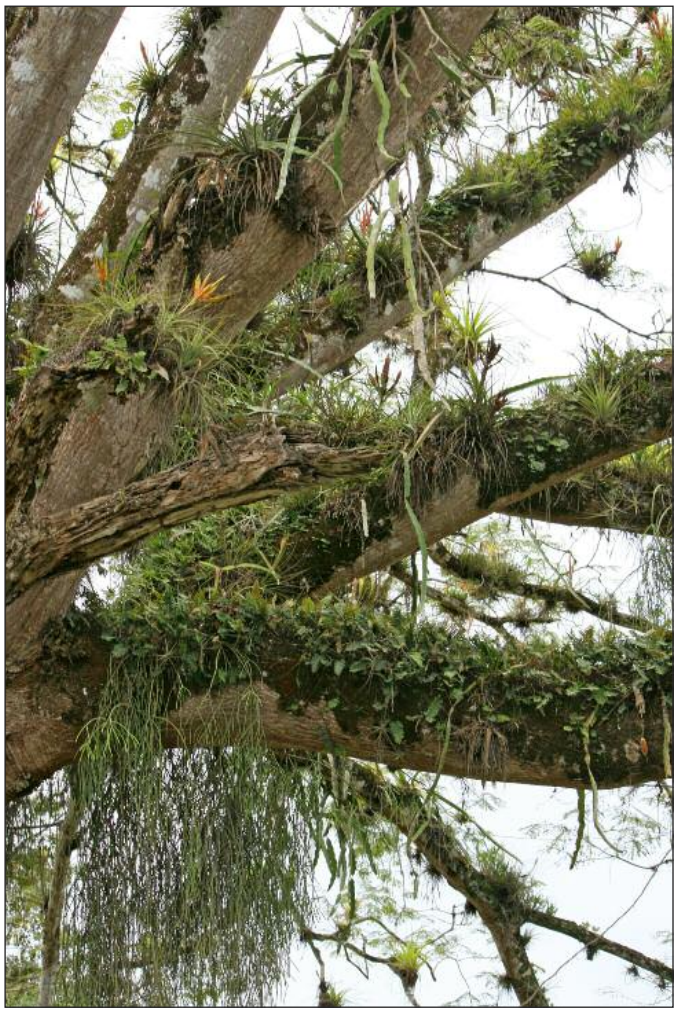

Fig.5 *Rhipsalis* with Bromeliads and other epiphytes on the branches of an old tree

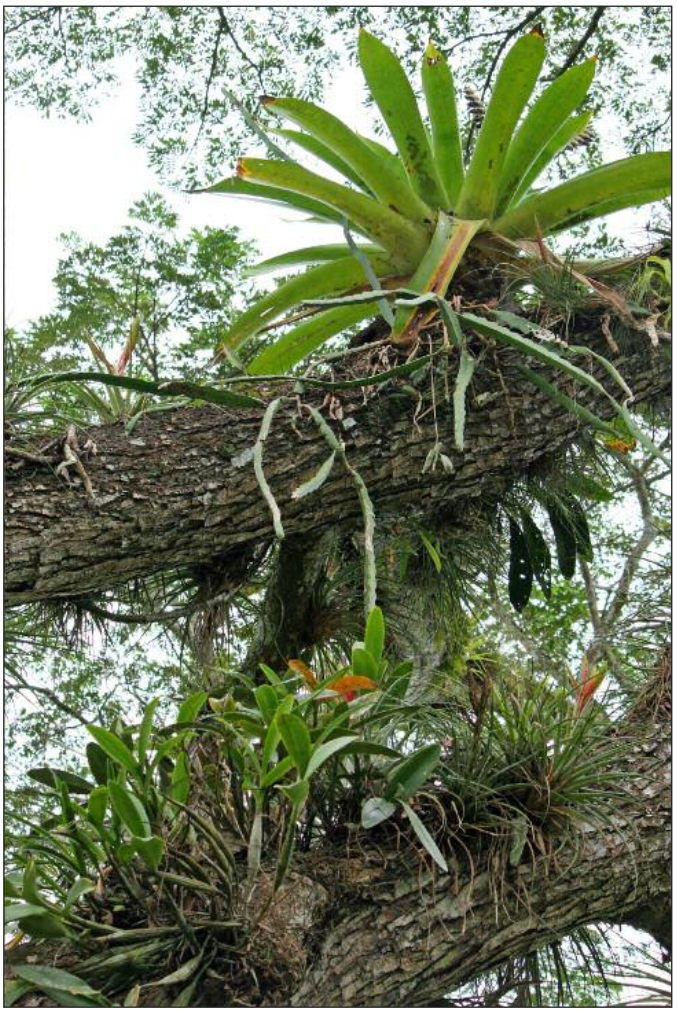

Fig.6 *Hylocereus* and other epiphytes on tree

Fig.7 Sunday on the Rio Olama -- wash the clothes, wash the kids, go for a swim.

Society Pages

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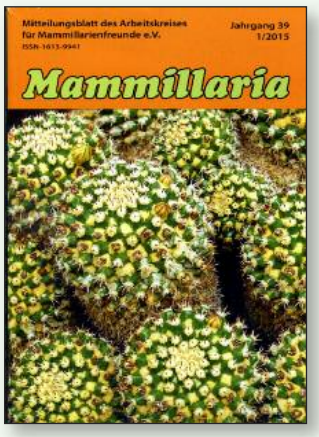

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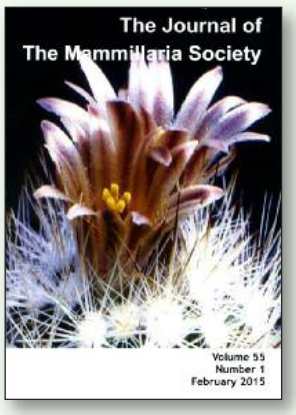

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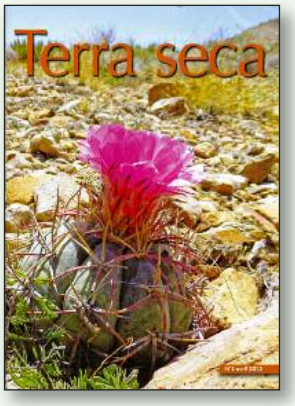

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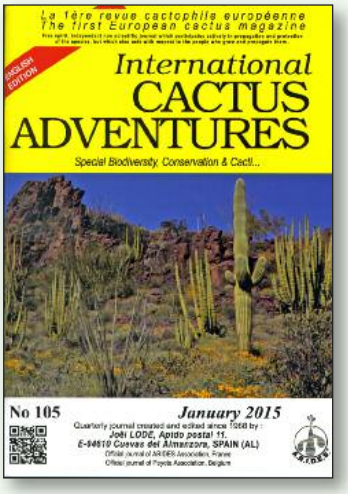

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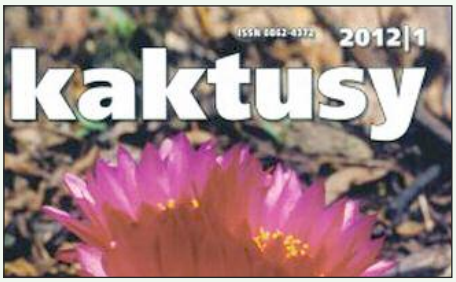

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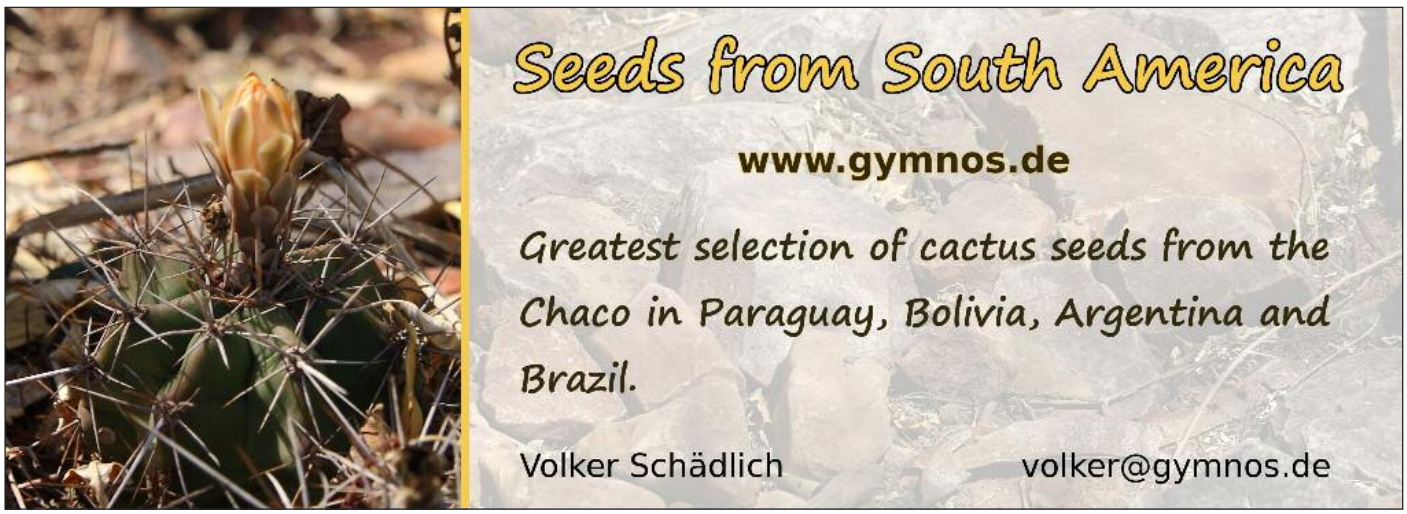

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Tomasz does not have a nursery but he often has mature cacti for sale on ebay. You can see his offerings here.

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Website: http://www.tonyironscacti.co.uk

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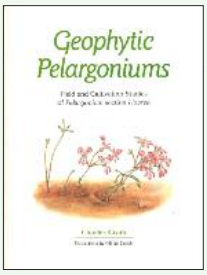

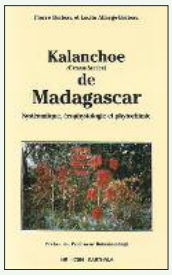

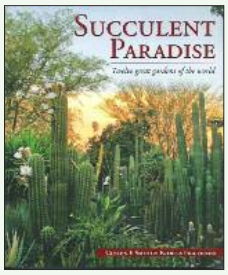

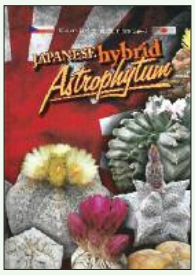

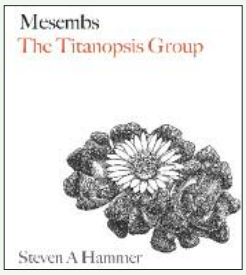

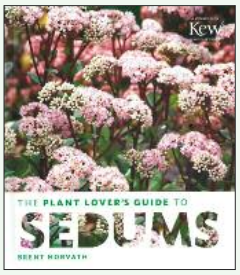

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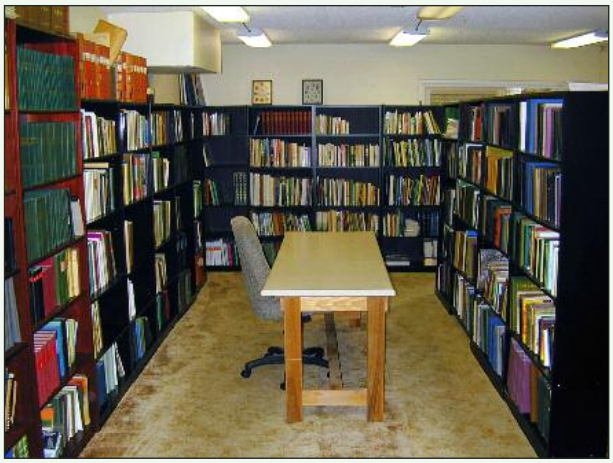

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