



The Cactus Explorer

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

Number 12

ISSN 2048-0482

August 2014

1 *Mammillaria bertholdii* sp.nov.

2 New *Echinocereus* subspecies

3 Ayopaya, Bolivia

4 Henri François Pittier

5 *Maihueiniopsis leoncito*

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This issue includes the publication of a new subspecies on page 24

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

Cover Picture The sensational *Mammillaria bertholdii* Linzen spec. nov. flowering at the type locality. Photograph by Thomas Linzen. See [page 7](#)

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.

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

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

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This issue published on
August 15th 2014

INTRODUCTION

Another Summer

Summer always feels like it passes by much quicker than the winter. I suppose it must be because there is so much to do in the warmer weather. The plants in the glasshouse need regular attention and the garden jobs like lawn cutting and weeding are time consuming.

I am really enjoying my part-time job at the garden centre owned by my friend Trevor. It is proving very popular with customers and gives me the chance to learn more about other plants. It is fun to work with an enthusiastic team and meet local gardeners.

The only problem is that I struggle to find time to put together the **Cactus Explorer** and edit *Bradleya* for the BCSS. To relieve the pressure, I am going to publish the **Cactus Explorer** when an issue is ready, rather than trying to stick to rigid publication dates. I still expect to publish 3 or 4 a year, depending on receiving enough material, and this flexibility will help me to maintain the quality.

Recently, I was sad to hear that my friend Francis Fuschillo had passed away. Francis lived near to me, in Kettering, for many years. We often met to share our common interest in *Gymnocalycium*. It was a stimulating experience and with Graham Hole[†] living nearby, we would all get together and discuss the plants in our collections.

Francis had spent some years translating articles about *Gymnos* from German and he kindly gave me access to his work for use in my book on the genus. He then moved with his family to live in Germany, near to that other great gymnophile, Jörg Piltz.

In an attempt to reduce my commitments, I have decided not to go to ELK this year. It is always an enjoyable event, especially meeting friends from around Europe, so it is my intention to attend again in the future.

Elisabeth and I really enjoyed the BCSS Convention held in Leicester in July. It was a



well-organised event with excellent lectures, all housed in a newly rebuilt conference centre with good facilities. The charity auction provided the opportunity for some large plants to find new homes, but I should say that Tony Mace was not taking this *Ferocactus* home! A report of the event can be found on the [next page](#).

The recent warm weather in England has certainly been to the liking of my plants. Growth has been very good, especially of those plants that I repotted recently.

Like most cactus growers, I like to experiment with soil. Working at the garden centre has give me access to different composts so I have been using sterilised loam rather than John Innes. The peat-free I had been using is not available locally now so I have replaced it with Bullrush ericaceous compost. My aim is to have an acidic medium which will retain its structure for some years.

Please consider sending me material for publication. I would especially like images of unusual plants flowering in cultivation.

Thanks for your interest!

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

Wedding of the Year

On Saturday 5th July, our good friend Paul Hoxey married Ericka Loaza. The ceremony took place at a hotel venue near Paul's home in Cambridge, England. Paul met Ericka in Arequipa, Peru, when he went there to learn Spanish in order to explore the country for cacti more effectively.



So that Ericka's family could share in their celebrations, a ceremony had already taken place in Arequipa. Some of you will already have met Ericka or seen pictures of her taken by Paul during his explorations. They will both be attending this year's Cactus Explorers Club Meeting, another chance to drink a toast to their future happiness together.

GC

Cactáceas Nativas de Chile

Florencia Señoret Espinosa &
Juan Pablo Acosta Ramos

A free online book about Chilean cacti

Available for download as a pdf file from
http://www.corma.cl/file/material/cactaceas_chilenas_2013.pdf

This book showcases the cactus flora of Chile with excellent photography and informative Spanish text.

Cactus Event of the Year

We all wondered if it could really be four years since the last BCSS Convention in 2010, but there we were, gathering again for a weekend of succulent entertainment.



The Stamford Court Conference Centre in Leicester was the same venue as last time, but in the interim 4 years it had been rebuilt and greatly improved. The large lecture theatre with its huge screen provided a perfect location to hear from the guest speakers, Ernst van Jaasveld, Guillermo Rivera, Olwen Grace, Roger Ferryman and Woody Minnich.



Anne Swithinbank, patron of the BCSS, discusses dimensions with Roland Tebbenham.

All the talks were truly excellent, well illustrated and entertaining. I particularly enjoyed the Short Lectures given by some of



David Kirkbright and Bill Darbon try to extract the maximum cash for the charity auction

our best UK speakers.

The auction held in aid of the Conservation and Research Fund followed dinner on the Saturday evening and raised nearly £2,000 from plants and other items donated by attendees.

The BCSS supports its objectives at this event not only by spreading information about plants but also by encouraging their propagation. Delegates can have a free table to sell plants they have grown and this resulted in a number of rooms filled with goodies to tempt us.

I am sure that anyone with an interest in our plants would have enjoyed this weekend. If you did not attend, please do consider it in future. The numbers attending were similar to the previous event so I hope that the BCSS will be encouraged and do it all again in 2018.

GC

New Mammillaria described

I shall be interested to hear what David Hunt makes of having a new *Mammillaria* species named after him.

Mammillaria huntiana sp. nov. was published by a group of Mexicans in the May issue [Vol.54(2):42-55] of the Journal of the Mammillaria Society. On the face of it, the new plant looks a lot like others already known, so I wonder if David will lump it in with something else!

GC

**europaean
cactus & succulent convention
12-13-14 sept. 2014**

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free admission**

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49
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Want to see plants in habitat?

It has been more than 20 years since my first trip to see cacti in South America. My introduction was made possible by going with an experienced traveller who spoke Spanish. I am sure you know him, Ken Preston-Mafham, famous as the author of 'Cacti - The Illustrated Dictionary' among a number of other books.

Many things about the experience surprised me, even though I had travelled extensively for my job. The plan was to visit north west Argentina, still a good choice for a first visit I think. The plants were remarkably easy to find, even without precise location information.

South America is a wonderful place to visit with vast expanses of country to explore. You do need to speak some Spanish but the local people are very friendly and helpful once they understand what you are asking for. Their spring is in October -November which is generally a good time to go to see cactus flowers.

People often ask me about going to habitat and I have a few observations: Bear in mind that you cannot go just once ... there are always places you did not quite get to, plants you did not find etc. It is an addictive activity! Also, plants in pots never look the same afterwards. It is fun growing plants but, for me, they look best in their homeland, especially the many huge ones.

Finally, try to go the first time with someone who knows the ropes. If you don't know anyone, then I recommend an organised trip such as those managed by Guillermo Rivera of [South America Nature tours](http://www.southamericanaturetours.com). Guillermo is a qualified botanist with a wide knowledge of the natural world, especially birds. He is Argentinian and was one of the speakers at the recent BCSS Convention. He now lives in Florida, USA.

Many British enthusiasts have travelled with Guillermo and had a good time. I have placed an advert for his company in the next column. GC



Upcoming Tours

MEXICO:

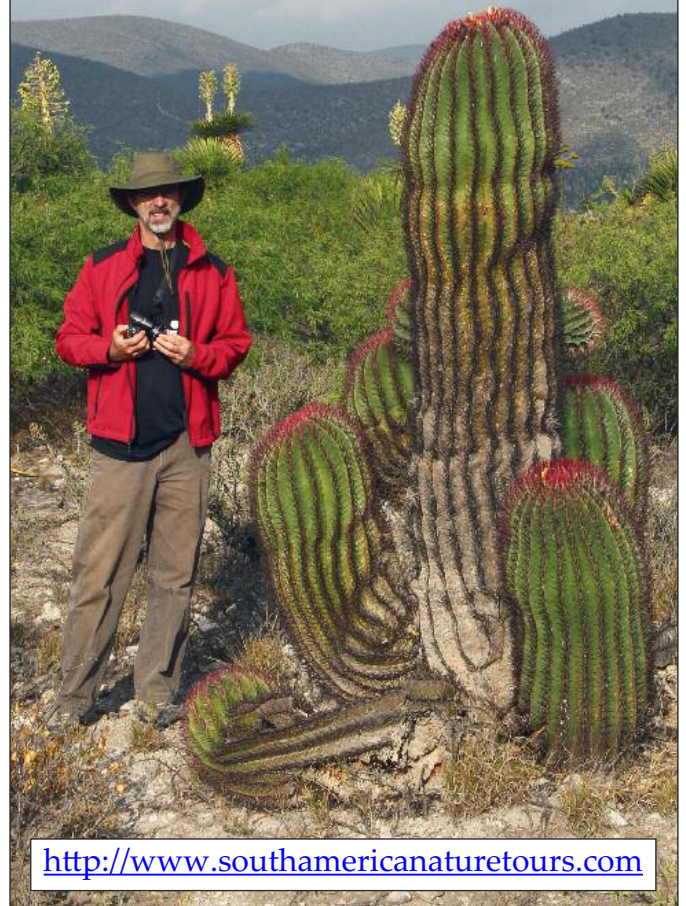
April 2015 (17 days) US\$ 4100

MADAGASCAR:

October 2015 (20 days) US\$ 4800

N.W. ARGENTINA:

November 2015 (16 days) US\$ 3950



<http://www.southamericanaturetours.com>

Tephrocactus Study Group Meeting 2014



Photo: Tony Roberts

There was a good turnout on the 11th May to enjoy good talks by John Arnold and Tony Roberts, a roast lunch, and to buy plants.

Another meeting next year is planned.

Watch www.tephro.com for news.

RECENT NEW DESCRIPTIONS

It is always exciting when I really sensational new cactus is found and named. The description of *Mammillaria bertholdii* by Thomas Linzen in the German *Mammillaria* journal is one of those moments.

Photographs by Andreas F. Berthold & Thomas Linzen



Photo: Andreas F. Berthold

Readers of the German *Mammillaria* Society journal will have been perplexed by an anonymous note about a supposed new cactus in Vol.37(2):106(2013). It was accompanied by two black and white pictures of a weird pectinate-spined plant and it looked like it might be a joke.

The anonymous author (now known to be Andreas Berthold) explained that during his trip to Mexico in March 2013, he found an interesting plant in the state of Oaxaca. He had not seen the flower so had no idea what it might be.

Following further investigations in habitat, there was another surprise. The flowers have the typical tube of *Mammillaria saboae* and its relations. This information confirmed that this

was a new, previously unknown, *Mammillaria* of the series *Longiflorae*, so was described as *Mammillaria bertholdii* in AfM38(2):124-128 by Thomas Linzen.

M. bertholdii is a remarkable new species in every respect. It combines the features of other known species. The growth habit and slender tubercles have a certain similarity with *M. luethyi*. The peculiar spines are reminiscent of *M. pectinifera* and *Pelecyphora aselliformis*. The feathery spines are a perfect adaptation to extreme environmental conditions. The flowers, fruit and seeds fit quite well within the series *Longiflorae*.

The seed was discovered quite by accident in a cavity in the plant body by the person preparing the type specimen. The author

Photo: Thomas Linzen



Photo: Thomas Linzen



ultimately had the good fortune to visit the population in its natural environment in bloom.

According to the distribution, *M. bertholdii* should be classified within the *M. napina* group, and there close to *M. hernandezii*. However, the distinctive flower tube is not known in this group, but is typical of the *M. saboae* group. In addition, the flowers and the seeds of *M. bertholdii* fit better in the *M. saboae* group, as well as its general growing conditions. They are found in small, flat rock

wells in a more structured flat, rocky landscape, in which a fine, mainly mineral, substrate has accumulated.

The species of the *M. saboae* group are so far known only from Chihuahua, Sonora and Durango, so Oaxaca is outside the known range. Perhaps this discovery of *M. bertholdii* is only one indication that further populations related to the *M. saboae* group can be found in the area in between.

Acknowledgements

The text of this article is extracted from the original description with permission from Thomas Linzen who also kindly provided the pictures

References

- Anonymous (2013)** Ein Neufund? Eigenartige Cactaceae in Oaxaca entdeckt. *Mtbl. AfM* 37(2):106
- Linzen, T. (2014)** Eine sensationelle Entdeckung aus Oaxaca. *Mammillaria bertholdii* spec. nov. -e in neues Mitglied der Reihe *Longiflorae* Hunt. *Mtbl. AfM* 38(2):124-128

IN THE GLASSHOUSE

Graham Charles relates his experience of *Selenicereus antonyanus*, a very distinct epiphytic cactus with spectacular flowers.

Photograph by the author



Regular readers will know that my interest in epiphytic cacti has been increasing lately so when my friend Chris Pugh offered me a cutting of *Selenicereus anthonyanus*, I was keen to give it a try.

The cutting was a thick succulent stem with deep indentations. It rooted easily so I put it in a hanging pot filled with rich organic acidic compost and kept it well watered. It grew a number of new branches in the first year and I thought it was doing really well. But, in the autumn, as the weather cooled, the branches turned yellow and started to die back.

The following spring, 2014, I repotted it and hung it in a warmer place, higher up in the glasshouse. Again, it grew like crazy and in May produced four amazing flowers. Since then, perhaps because it is getting too much sun, the branches are looking rather yellow

again so I shall have to put it in a shadier place.

The plant was first described by Alexander in the American journal of 1950 when he created a new genus *Cryptocereus* to accommodate it. It had been discovered four years earlier by Tom MacDougall in Chiapas, Mexico. The first plant to flower in cultivation was in the care of Dr. Harold Anthony of New Jersey, after which it is named.

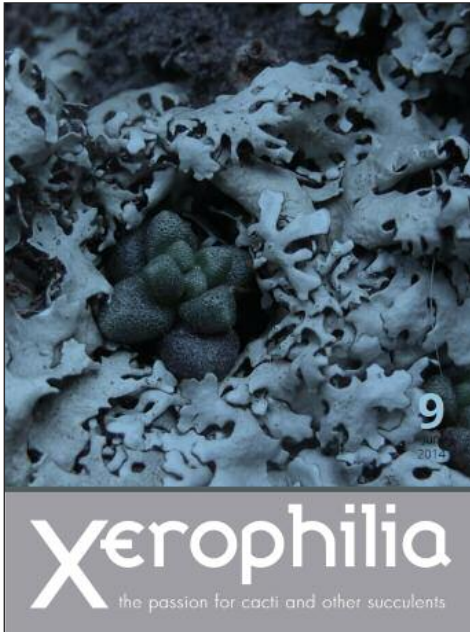
Backeberg expanded *Cryptocereus* to include two more species; *C. imitans* in 1959 and *C. rosei* in 1963, both now usually included in *Weberocereus*. Hunt transferred *C. antonyanus* to *Selenicereus* in 1989. We await a molecular study to indicate their true generic placements.

GC

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 ninth issue of Xerophilia appeared in July 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.

Full of interesting material, topics include *Ariocarpus kotschoubeyanus*; Nuevo León; Tula, Tamaulipas; The biosphere reserve of Pinacate y Gran Desierto de Altar; *Turbincarpus pseudomacrolele X horripilus*; *Mammillaria huntiana* sp. nov.; *Turbincarpus viereckii* subsp. *reconditus*; *Aztekium valdezii*; Peru; *Turbincarpus mandragora*; Africa; *Gymnocalycium spegazzinii*; small *Opuntias*; *Crassula rubricaulis*, *sedum fuscum* and variegated *Carpobrotus edulis*.

The magazine may be downloaded as a pdf from

<http://xerophilia.ro>

Contact: xerophilia@xerophilia.ro

ECHINOCEUREUS Online-Journal

The German language on-line journal for Echinocereus lovers.

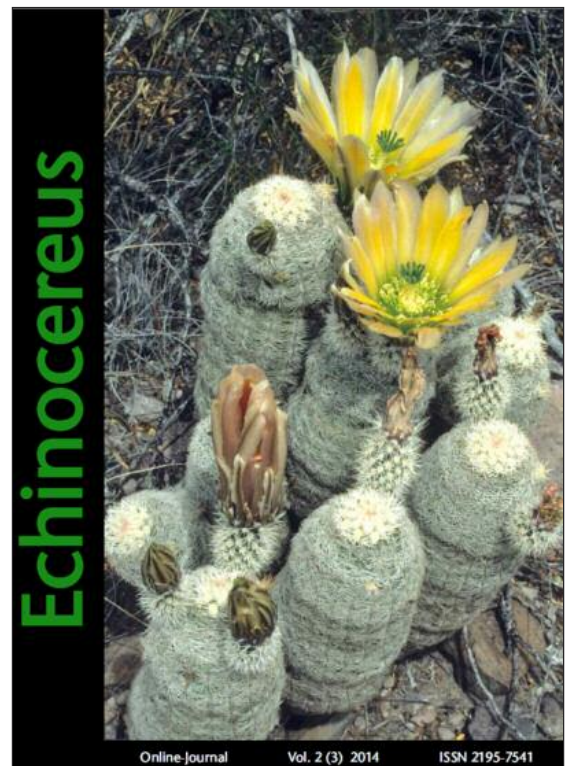
The goals of this new journal are to study the genus *Echinocereus*, to publish articles about the continuous research on these plants (classification, morphology, evolution) as well as to protect the genus *Echinocereus* by reproduction from seeds and distribution of the seedlings.

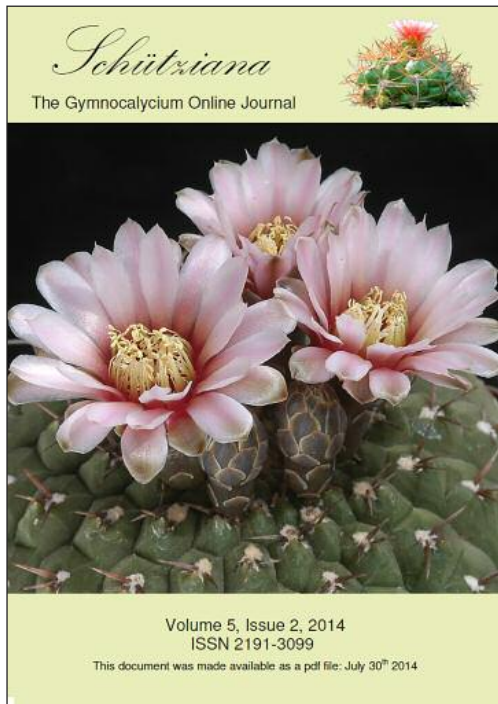
In this seventh issue there are well-illustrated articles: A nomenclatural type for *Cereus roetteri* Engelmann! by Wolfgang Blum & Michael Lange; The influence of drought on cactus plants in Texas by Herbert Bauer

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

GC





Schütziana

The latest issue of Schütziana, the specialist on-line journal for *Gymnocalycium* enthusiasts, deals exclusively with *G. bodenbenderianum* and *G. riojense*. The article by Wolfgang Papsch discusses the history of the names and whether they are really different.

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 any of the issues from:

www.schuetziana.org

GC

Avonia-News

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

See website: www.fgas-sukkulenten.de

Annual seed list for members and much more.

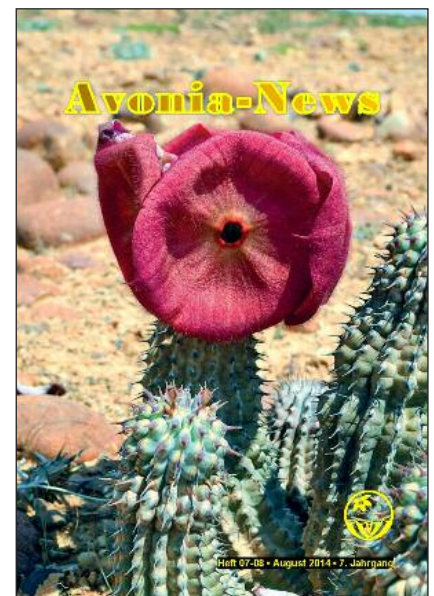
Special interest groups for *Aloe* (incl. *Haworthia* etc.), *Ascleps*, *Euphorbia*, *Mesembs* and *Yucca*/winter-hardy Succulents.

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@

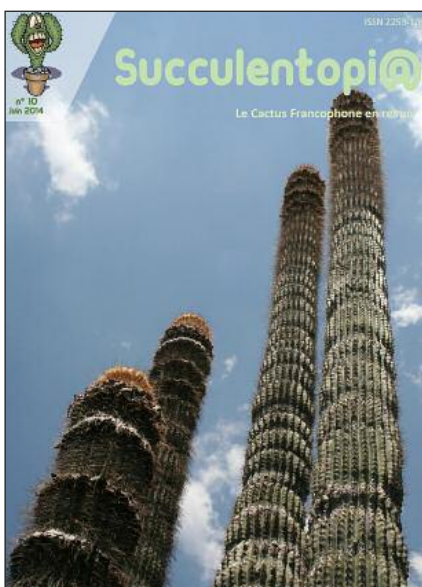
The tenth issue of this free online journal has recently appeared. This was the first online journal published in French. The quality is excellent as you would expect from Yann Cochard and his very active team. It is available as a free PDF download from:

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

This issue includes a photo gallery; Articles about orchids; growing cacti from seed in polythene bags; Philately and the CactusPro Library which continues to offer extremely useful material online.

As usual, very interesting material and some great pictures.

GC





Sansevieria Online

The new 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 etc.).

No.2 includes: The mysterious fruit of *Sansevierias*; Madagascar and its *Sansevierias*; An appeal to restore Petagnas authorship of the genus *Sansevieria*, nom. cons. (Liliaceae); *Sansevieria roxburghiana* of the Coromandel Coast; Popular *Sansevierias*.

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

Another issue of this online journal that differs from others by its landscape format and notable for its professional page designs. Exactly what you would expect from Davide Donati. It is also available in Italian and French, as well as English.

In this edition: Mexico again...Travelogue of a photographer and a naturalist; *Fouquieria leonilae* and *F. shrevei*, two little known *Fouquieria*. WIG: Succulents with style ! *Sempervivum montanum*, a jewel from the high peaks. *Inula crithmoides*, the false *Crithmum* who dreamed of being a true one.

Download the PDF from <http://www.acta-succulenta.eu>



Bulletin of S.L.C.C.

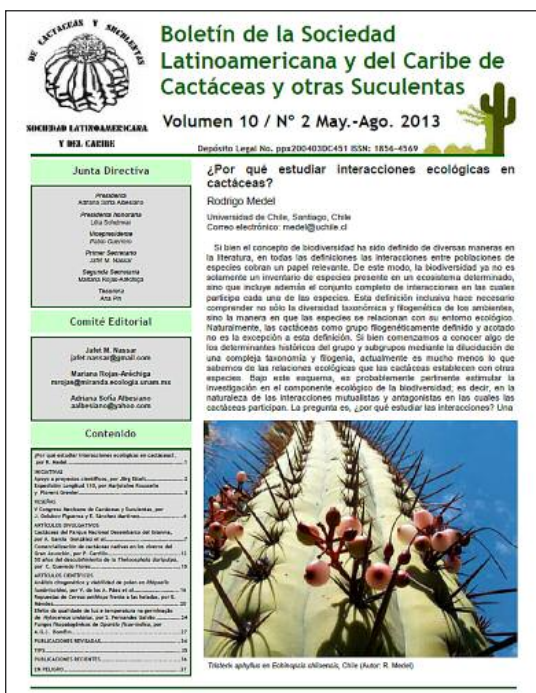
This long-running Spanish language journal is a mine of information about cacti and succulents of the Caribbean, Mexico and South America.

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.

Free PDF downloads of all the issues from <http://www.ibiologia.unam.mx/slccs/www/boletin.htm>

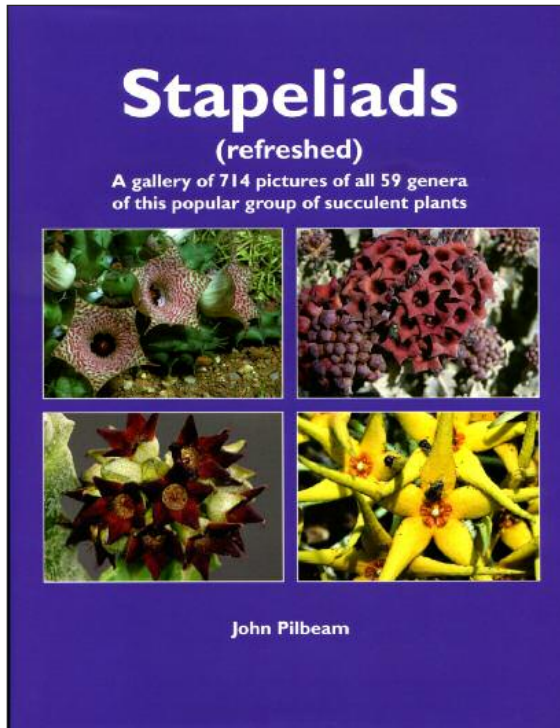
GC



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.



Stapeliads (refreshed)

I bought the new edition of this book at the BCSS Convention. The first edition was published four years ago and has proved to be a very useful pictorial reference to these unique succulents which have fascinated me since my early days in the hobby.

Stapeliads are simply remarkable plants but my experience of their cultivation has been somewhat mixed. Growing them in pots was the obvious thing to do, but they were very prone to rot and mealy bug so I ended up with very few in my collection.

When I recently replaced the soil in a large raised bed in my glasshouse, I planted out many of my succulents with pleasing results. Under the larger plants of Aloe, Alluaudia, Pachypodium etc. which grew really well, I planted Gasteria, Haworthia and even some Stapeliads. The results have been a surprise with the plants establishing, spreading and flowering.

John's book was really useful in confirming or establishing the identity of my Stapeliads. He was very brave to write a book about plants for which there are so many disputed genera between which the species move around so often. By not taking sides in the arguments, he has left us with the choice of which genus to choose.

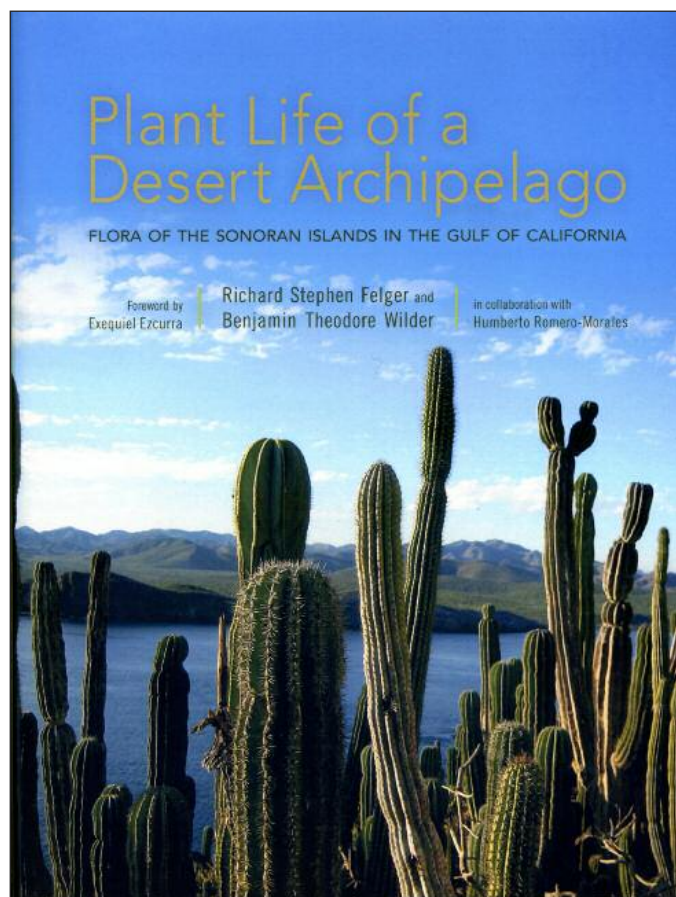
The second edition was embarked upon because the first edition had sold out. Rather than a simple reprint, the BCSS decided to modify the content and add 28 more pictures as well as making updates to the text and the existing pictures. If you did not buy the first one, then this is clearly a valuable addition to your library. The dilemma for those of us who already have the 2010 version is if the differences are worth buying this one. I decided they were, but I have to admit to my desire to own the set!

The book is an easy to use, attractive picture book with enough information for those who want to collect and grow the plants. There is advice on cultivation, distribution data and the place of first publication for those who want to know more.

The 223 pages are filled with John's easy-to-read writing style and good quality pictures from many contributors now make this the first place I look when I need information about Stapeliads. You are sure to see plants in here that you would like to own but they may not be that easy to find for sale!

The book can be bought for around £40 from the [BCSS](#), [Keith's Plant Books](#) or [John Pilbeam](#).

GC



Plant life of a Desert Archipelago

Richard S. Felger & Benjamin T. Wilder

There is something about the islands off the coast of Baja California which has always intrigued me. Perhaps it is the thought of sun-bathed unspoilt cactus habitat surrounded by blue sea. Or maybe it is the slightly mysterious species of *Mammillaria*, *Echinocereus* and *Ferocactus* that bring part of their homeland into our glasshouses, not forgetting the other succulents such as *Agave*.

This scientific account describes the 400 plant species that can be found on the islands of the Gulf of California. This bay lies between Baja California to the west and Sonora to the east.

It claims to be the first in-depth coverage of the subject and it is clearly the culmination of many years of research. There are precise accounts of the islands and their plant life, illustrated with 400 pictures which are mainly B&W.

There is an interesting account of the

geological history of the region and a detailed description of the plant communities. I found the chapter about botanical explorations on the islands and the people who did it most interesting. Some of the names are well known to us as pioneers of cactus and succulent discovery such as Gentry; Glass; Gold; Lindsay; Moran; and Rose.

The plant species accounts are organised by plant family and illustrated with detailed drawings and photographs. There are 20 cactus species from 9 genera, representing about 5% of the Sonoran islands' flora. Keys to the genera are provided and others for the species of each. The spot distribution maps show where each species is recorded to grow.

This is a very readable book with lots of human interest, not only from the point of view of the explorers, but also the local people and their utilisation of the plants.

The pictures convey the dramatic landscape, although I cannot understand why the publishers chose to include so few in colour and to place them in a block. This approach harks back to outdated printing methods and diminishes the appeal of the book.

Published by The University of Arizona Press, the 600 pages are 279 x 210mm (slightly shorter than A4), and well bound in hard covers with a pictorial dust jacket.

I bought my copy from [Amazon](#) for approximately \$60.

GC

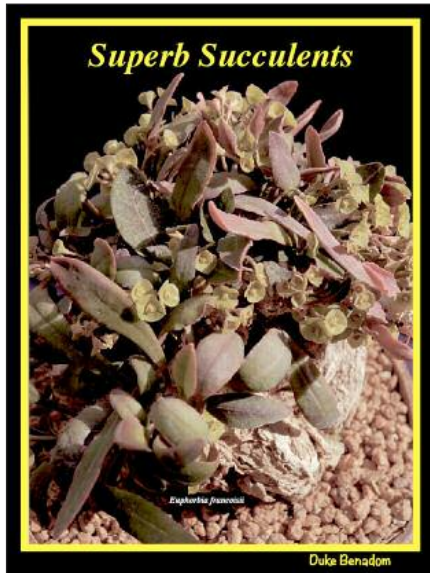
Some other books and articles about the cacti of Baja California and its islands:

Frank, G.R.W., Ohr, M.&A. and Römer, R.C. (2001) Die Echinocereen der Baja California. (in German)

Johnston, I.M. (1924) Expedition of the California Academy of Sciences to the Gulf of California in 1921. Proceedings Vol XII(30):951-1218

Wolf, F. & R. (1999) Baja California und seine Inseln. (in German)

Wolf, F. & R. (2004) The Ferocacti of Baja California. (in German and English)



Superb Succulents

Duke Benadom

I don't have either of these books so I cannot write a review but for your information I am publishing the words of the author:

Duke Benadom's *Superb Succulents* is 8½" x 11" (22 x 28 cm) format with 700 full-colour photographs, 236 pages printed on quality 150 gsm, Lumi Silk Art paper, hard cover book, based on the popular, long-running column, *Superb Succulents* as seen in the *Cactus & Succulent Journal* – an assemblage of award winning succulent plants staged for perfection.

Duke has been involved with several cactus & succulent clubs and is a life member of three. He became a Director for the Cactus & Succulent Society of America (CSSA) in 1990, served as the CSSA's Show Chairman for more than a decade, and as Convention Chairman for six conventions. He served as Vice President and then President for a total of almost ten years, and as Editor of the *Cactus & Succulent Journal* for just over a year. He has been the author of the long-running CSJ column, *Superb Succulents*, since its inception; that column remains popular today. Duke's first book, on *Superb Succulents*, was published on September 25, 2013. He enjoys flora and fauna, travelling, photography, and sharing these experiences with others of similar interests.

Standard Edition

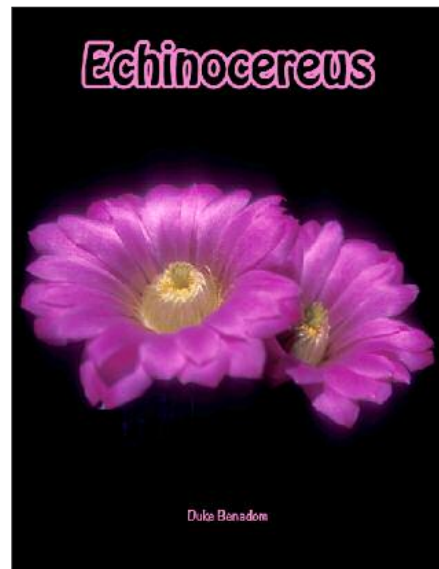
Hardbound with full-colour dust jacket and shrink-wrap: \$59.95

Collector's Edition

Includes Egyptian Dynic Saifu cloth cover (hard bound) with gold lettering, a full-colour dust jacket, and full-colour slipcase: \$99.95

Both editions are available at:

www.SuperbSucculents.com and from Duke's [Facebook](#) page.



Echinocereus

Duke Benadom

This second book will be available for shipment by about September 2014. It will be an 8.5" x 11" 500 page opus on *Echinocereus*, printed on 150 gsm, Lumi-Silk Art paper, hardbound with 867 photographs of which more than 100 are full page & bled to the edges.

Standard Edition

Hardbound with full-colour dust jacket and shrink-wrap: \$98

Collector's Edition

Includes Egyptian Dynic Saifu cloth cover (hardbound) with gold lettering, a full-colour dust jacket, and full-colour slipcase: \$138

Both editions are available at:

www.SuperbSucculents.com and from Duke's [Facebook](#) page.

GC

CACTUS PEOPLE HISTORIES

Charles Staples continues his series of articles about personalities in the world of succulents. This time he introduces Dr. Henri François Pittier de Fabrega

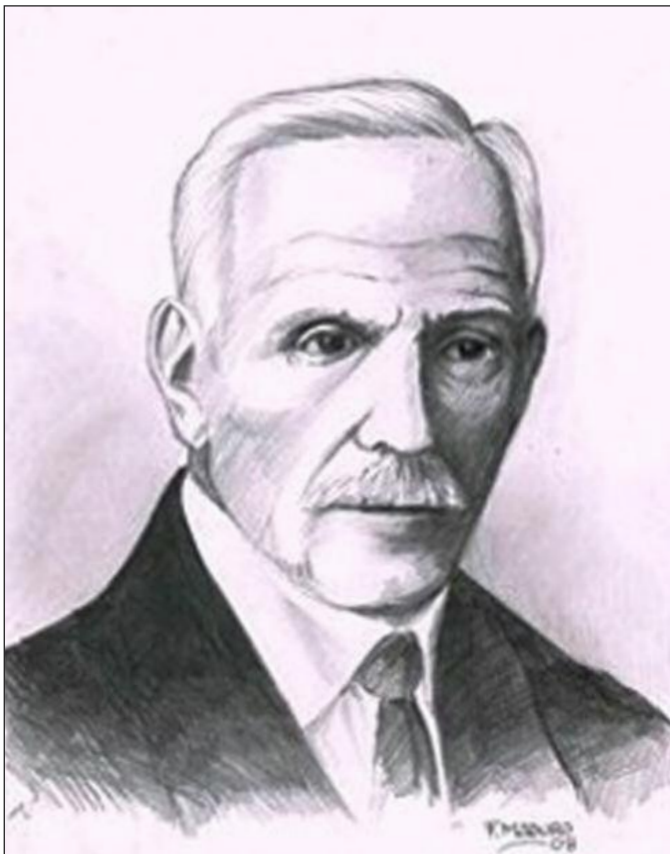
The following brief biography touches mainly on the aspects of the life and career of Dr. Henri François Pittier de Fabrega as they relate to his contributions to the cactus and succulent plant world. This person made wider contributions than have been included here, but I hope that for interested readers, this will provide a sufficient introduction to the achievements of this individual.

Dr. Henri [Henry] François Pittier de Fabrega (1857–1950) became a civil engineer, botanist, ethnologist, geographer and naturalist — an explorer and major influence in both Costa Rica and Venezuela. Pittier was born in Bex, Switzerland on 13th August 1857. His life in Switzerland or Europe is little known. He received his PhD at the University of Jena, Thuringia, Germany in 1885. Later he was awarded an honorary doctorate at the Lausanne University in Switzerland.

With Pittier's move to Costa Rica, he was the

first professional geographer to reside there from 1887 to 1905. By 1889 he founded the Physical Geographic Institute that included a meteorological observatory and a museum of natural sciences. In addition to the mapping and delineation of roads and railways, Pittier studied the flora and fauna of the country. It was here that he discovered *Cereus (Hylocereus) calcaratus* in 1901. *Phyllocactus (Epiphyllum hookeri* ssp.) *pittieri* from Costa Rica was named in his honor by Dr. Frederick Albert Weber (1830–1903) in 1898.

In 1905, Pittier moved to the United States of America (USA) in the Tropical Agriculture of Bureau of Plant Industry for the Department of Agriculture (USDA) in Washington DC where he was able to study and research the collections held in Costa Rica. As a result of this research and study, he published the book "Flora Primitia Costaricensis " in 1907. During his time at USDA his botanical fieldwork on



tropical botany took place in Venezuela, Mexico, Guatemala, Panama, Colombia and Ecuador.

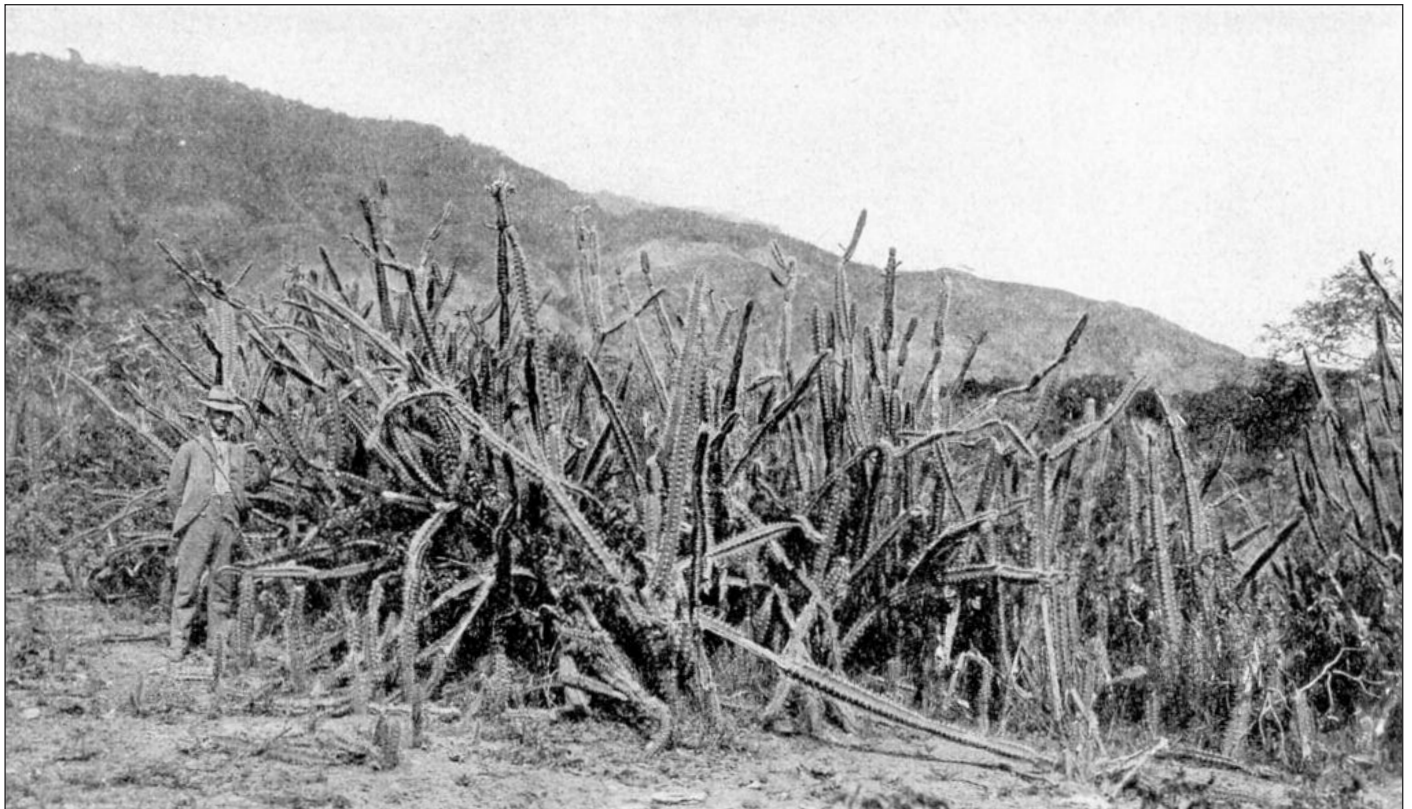
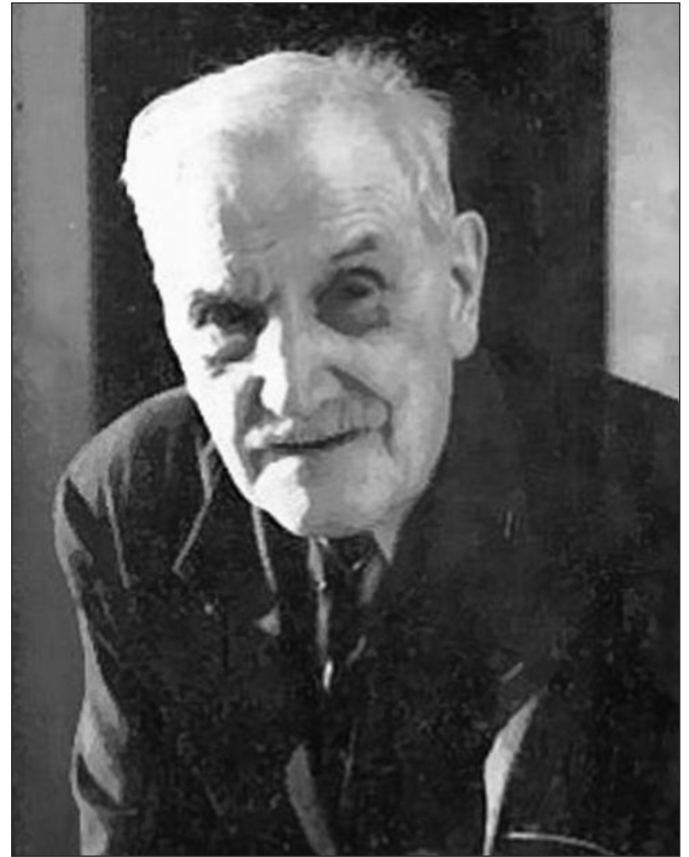
His death occurred in Caracas, Venezuela on 27 January 1950.

[Chuck Staples](#)

To his enduring credit, Pittier discovered during this time: *Echeveria pittieri* [described and named after him by Joseph Nelson Rose (1862-1928) in 1911]; *Lemaireocereus* (*Stenocereus*) *humilis*; *Opuntia pittieri* [described and named after him by Nathaniel Lord Britton (1859-1934) and J.N. Rose in 1919]; *Rhipsalis* (*floccosa* ssp.) *pittieri* (described and named after him by N.L. Britton & J.N. Rose in 1913); and *Wittia* (*Pseudorhipsalis amazonica* ssp.) *panamensis*. Pittier continued to work as a botanist with USDA until his move to Venezuela in 1919.

Pittier had visited Venezuela in 1913 and 1917 and, in 1919, he settled in the country to become director of the Commercial Museum in Caracas where he conducted extensive studies of the nation's flora for the rest of his life. He created the "National Park Rancho Grande" that, after his death, was renamed "Pittier National Park".

During his working lifetime Pittier had a distinguished career as a tropical naturalist.



Lemaireocereus humilis at the type locality, Venticas del Dagua, Colombia. Photographed by Pittier in 1906. From; Britton & Rose 'The Cactaceae' Vol II:100 (1920)

NICARAGUAN FIELD NOTES (3)

NORTHERN MIRAFLOR RESERVE

Leland Smith continues his account of his adventures in Nicaragua, this time to the Northern Miraflores Reserve. Pictures by the author



Fig.1 Miraflores high country, a patchwork of forest, pasture and farms. This farm is growing cabbages and potatoes.

This article is from two day trips taken in February and March of 2014 to the Miraflores Reserve (Ref.1) east of Esteli in the northern mountains. February and March are mid-summer in this region, so people frequently visit relatives in the higher elevations to get away from the heat of the low-lying cities and agricultural valleys.

On the first trip we passed through the dry area of Coyolito, home to scattered populations of *Opuntia decumbens* and *Nopalea lutea*, to a mid-elevation area of dry forest, low grade cattle pasture, and onion fields. After greeting the folks at the farm and helping unload the picnic supplies, I headed up a dirt

road to a point where I found a trail heading down into a rocky canyon with a running stream. I had been there a year earlier, but wanted to come back to document the site and take a second look at some epiphyllum growing on a rock outcropping.

In the canyon I first came upon some rocks with large populations of orchids growing on them, and then to the area with the epies. They were not in flower nor fruit and the stem sections seemed much shorter than *E. hookeri*, which is the species I would expect to find at that elevation. I took 3 cuttings of flat stem sections to grow on in my garden to identify them.



Fig.2 Epiphyllum on rocks overlooking the stream. The plastic tubing is used to irrigate the nearby onion field.



Fig.3. Epiphyllum cuttings from the place in Fig.2 showing new growth

That brings up one advantage that a local botanist has over botanists who come from afar and have limited time in any one given location and face major hurdles in transporting plant materials over national borders. Plants are only in flower for short periods each year and with some species the flowers and fruit are

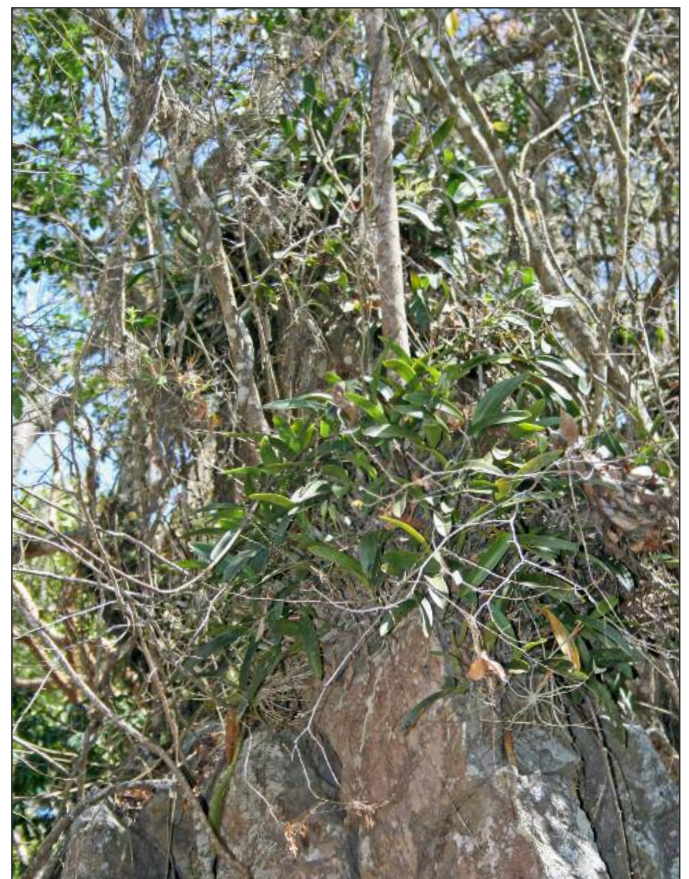


Fig.4 Orchids growing in the rocky canyon.



Fig.5 *Pilosocereus leucocephalus* with orchids and peperomia at base.



Fig.6 Detail of the *Pilosocereus leucocephalus*.

key to identification. With some of the fast growing *Epiphyllum* species, one can take cuttings easily and grow them on to flowering in about 3 years. This causes minimal damage to the environment and produces the photos and documentation needed. Amateur or professional, a local botanist can add much follow up information to the field work in this manner.

Near the rock outcropping the immediate area had small specimens of *Nopalea lutea*, *Pilosocereus leucocephalus*, and *Opuntia decumbens*. The *N. lutea* was notable because it was growing in thick forest with much competition from other plants so it was very tall and thin with minimal branching, so much so that it was hard to recognize at first glance. On a tree branch was a specimen of *Strophocactus (Selenicereus) testudo*. I continued walking for about two hours in this area and found no other locations with more than one species of cactus.



Fig.7 A close-up of the *Strophocactus testudo*.

On the second trip we went up another main dirt road to where it meets the Esteli River. I had been in this area before, but this was the first time the river level was low enough to ford in my small truck. As we wound our way up on the other side of the river we passed out of dry forest into a cool area of potato fields, green pastures, and evergreen forest.

At the farmhouse I asked the caretaker if there were any cactus in the area and he said to try the forest on the edge of the pasture. I went there and spent an hour or so checking it out. I knew that epiphytic cacti are not common in deep shady forest. Even if they are present, there they are often up in the treetops where they are hard to see and harder to get to.

I worked the edge of the trees, and found a trail going in to where a tree had fallen leaving a hole in the canopy. A good spot, but finding

Fig.5 Detail of the *Pilosocereus leucocephalus*.

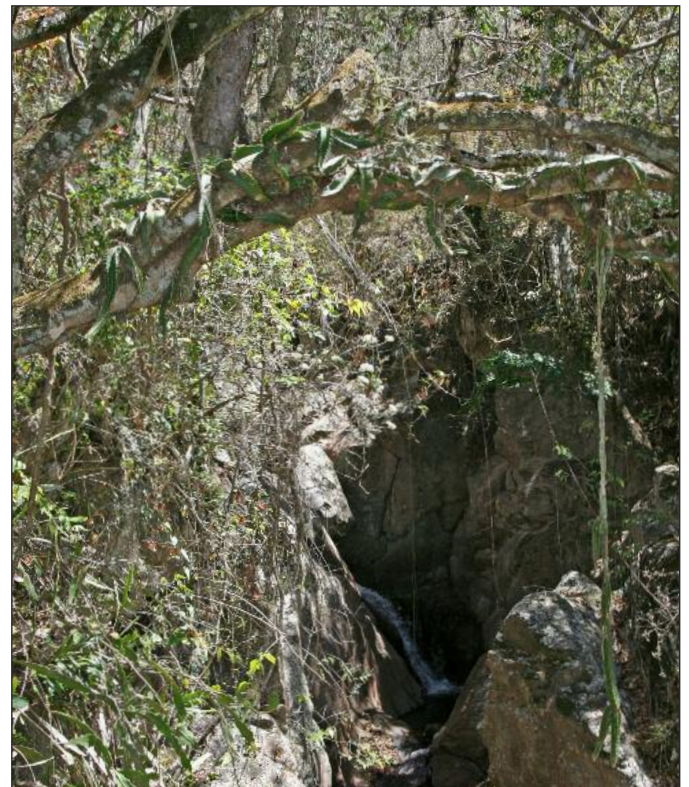


Fig.8 *Strophocactus testudo* on tree branch overhanging the stream.



Fig.9 One of the farmyard trees where I found *Epiphyllum thomsonianum*.

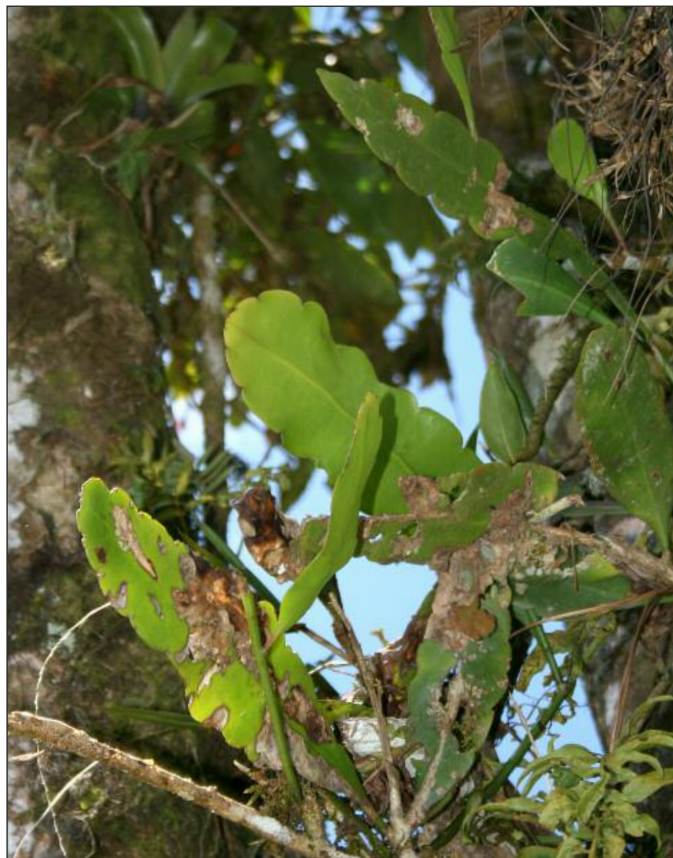


Fig.10 A close-up of the *Epiphyllum thomasianum*.

no cactus there, I then circled around to the southwest side of the forest remnant where there should have been more sunlight, but what I found was three meter tall grass and brush, not cactus. I struck out on this patch of forest. It had Peperomias and four kinds of Philodendron, but if there were cacti I did not find them.

I have been in places, with Arizona coming to mind, where you can get up to some high ground and see cacti for miles. Nicaragua is generally not like this. Cacti are where you find them, often in small groups and intermingled with other plants of other families. In the rainy season they may be covered with seasonal growth of vines and shrubs.

I was starting to get hungry and headed back to the farm house. Sure enough, right in the pasture by the farmhouse, were small specimens of what appeared to be *Epiphyllum thomasianum* growing on two trees. The key indicator on these is the comparatively straight margins with deep indentations. I have found these elsewhere in the high country of Mirafior.



Fig.11 Bad boy! Livestock that push over or go through fences to damage crops get fitted with a wooden collar.



Fig.12 Brunch, the barbequed pork came later.

When I got back to the farmhouse I was in luck and there was a fresh plate of tortillas, tomatoes, and a generous slice of cuajada, a locally made soft cheese. On a dairy farm in the Nicaraguan mountains, this and some rice and beans might well be your food three meals a day just about everyday, but it hit the spot for me.

Overall, these were two good trips, with the cuttings from the first site being the main addition to my cactus project.

References

- (1) <http://www.ucamiraflor.com/reserva-natural/>
<http://www.sinia.net.ni/wamas/documentos/PM/Plan%20de%20Manejo%20Mirafior%20M-oropotent.pdf>

[Leland Smith](#)

A NEW CHIHUAHUAN TAXON OF *ECHINOCEREUS ENGELMANN*

The new *E. pectinatus* subsp. *rutowii* is formally described here by Wolfgang Blum, based on the western-most locations of the diploid *E. pectinatus* in Chihuahua.

Photographs by the author except where shown

Photo: Uli Dosedal



Fig.1 *Echinocereus pectinatus* (Scheidweiler) Engelman subsp. *rutowii* Blum subsp. nov. at the type locality

Introduction

Continuing studies which had originally started in the 1990s, the author realized that a few mistakes had slipped into the publications 'Blum et al. 1998' and 'Frank 1997'. Since then, the challenging investigation was continued and it turned out, that some parapatric populations do not match the general concept of the type of *E. pectinatus* with regard to a number of significant aspects – such as colour of the flower, of the fruit and pulp as well as the spine number.

Holotype

Mexico: Chihuahua, Municipio de Chihuahua,

east El Olivio, *Anonymous* 356, 2006, 1650m NN, April 2006 [KR21723].

Etymology

The new subspecies honours the work of Jürgen & Ruth (†) Rutow.

Diagnosis

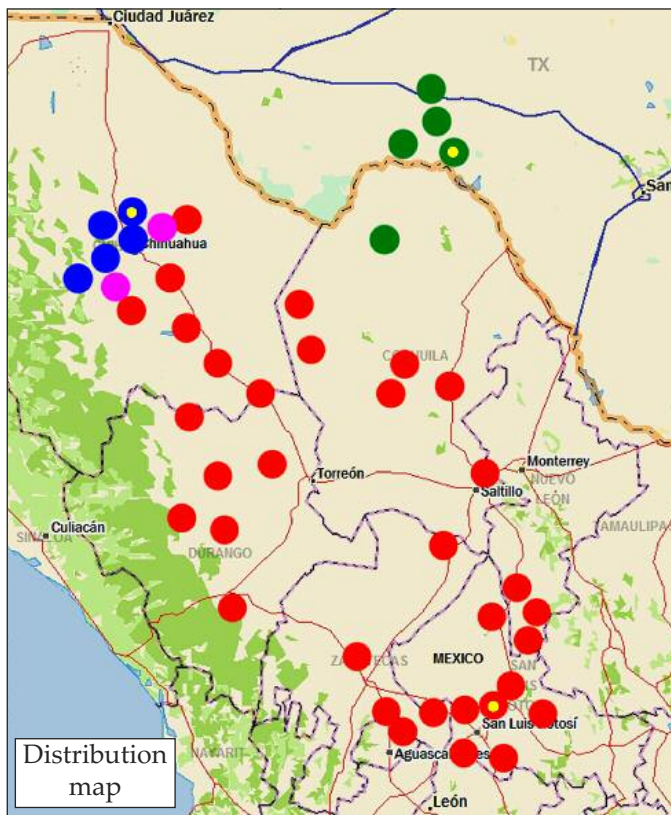
The subsp. *rutowii* differs from subsp. *pectinatus* by less radial spines, the different flower colour, and different fruit and pulp colour, together with its northern parapatric distribution without overlap of distribution areas.

The subsp. *rutowii* also differs from subsp. *wenigeri* (L. Benson) Blum & Rutow by its

Taxon	<i>subsp. pectinatus</i>	<i>subsp. wenigeri</i>	<i>subsp. rutowii</i>
STEM			
shape:	cylindrical, erect, little branching	cylindrical, erect, little branching	cylindrical, erect, little branching
height / diameter:	- 300mm/ 50 - 90mm	- 200mm/ 50 - 70mm	- 300mm/ 50 - 110mm
epidermis colour:	green	green	green
rib shape:	slightly tuberculate	slightly tuberculate	slightly tuberculate
rib: number :	20 - 23	15 - 18	17 - 22
width / height / distance:	5 - 12mm/ - 3mm/ 5 - 15mm	5 - 10mm/ 5 - 10mm/ 5 - 10mm	5 - 10mm/ 5 - 10mm/ 5 - 10mm
root:	fibrous	fibrous	fibrous
SPINATION			
areole shape:	oval	oval	oval
length / width / distance:	-6mm/ - 3mm/ - 10mm	- 6mm/ - 3mm/ - 15mm	- 5mm/ - 3mm/ - 8mm
radials: number / length:	22 - 30 / - 15mm	14 - 22 / - 8mm	16 - 22 / - 8mm
radials: colour:	white - brown, dark tipped	white - light brown, dark tipped	white - red -brownish, dark tipped
radials: arrangement / shape:	adpressed, spreading / round	adpressed, spreading / round	adpressed, spreading / round
centrals: number / length:	-8 / - 3mm	- 4 / - 6mm	- 7 / - 6mm
centrals: colour:	white - brown, dark tipped	white - light brown, dark tipped	white - red - light brown, dark tipped
centrals: arrangement / shape:	projecting / round	projecting / round	projecting / round
peculiarity:	coloured zones	self coloured	coloured zones
FLOWER			
flowerbud:	pointed, red, spined	pointed, red, spined	pointed, yellow, spined
flower shape:	cup-shaped	cup-shaped	cup-shaped
length / diameter:	70 - 90mm/ 70 - 150mm	90 - 110mm/ 100 - 130mm	80 - 110mm/ 70 - 120mm
flower colour:	pink - purple, with and without white zone, green - brown base	pink - purplish-pink, white zone, green base	yellow hues, orange, no white zone green base
tube: length / diameter / colour:	10 - 15mm/ 12 - 40mm/ olive-green - brownish	10 - 15mm/ 15 - 25mm/ olive-green	10 - 15mm/ 20 - 35mm/ olive-green
ovary: length / diameter:	25 - 30mm/ 15 - 20mm	- 20mm/ 10 - 15mm	- 20mm/ 10 - 15mm
colour:	green	olive-grün	green
spines: number / length:	10 - 15 / - 10mm	10 - 15 / - 10mm	10 - 15 / - 10mm
colour:	white - pink, dark tipped	white, dark tipped	white, dark tipped
petals: length / width:	- 80mm/ 10 - 15mm	- 80mm/ 10 - 15mm	- 70mm/ 12 - 20mm
nectar chamber: length / width:	- 6mm/ - 4mm	-6mm/ - 3mm	- 6mm/ - 3mm
filaments: length / colour:	20 - 25mm/ greenish	- 15mm/ greenish	- 15mm/ greenish
anther colour / pollen colour:	yellow / yellow	yellow / yellow	yellow / yellow
style: length / width / colour:	-40mm/ - 4mm/ greenish	- 40mm/ - 2.5mm/ whitish	- 45mm/ - 2.5mm/ white
stigma lobes: number / length:	9 - 12 / 6 - 8mm	10 - 15 / 4 - 8mm	9 - 17 / 4 - 8mm
stigma lobe colour:	green	green	green

Table continued on the next page

Taxon	<i>subsp. pectinatus</i>	<i>subsp. wenigeri</i>	<i>subsp. rutowii</i>
FRUIT			
shape / maturity time:	round – oval / 2 – 2.5 months	round - oval / 2 months	round - oval / 2.5 - 3 months
fruit: length / diameter:	20 - 35mm/ 15 - 25mm	25 - 30mm/ 20 - 25mm	15 - 40mm/ 15 - 30mm
colour:	red	red	dark-green - aubergine
pulp:	red	white - pinkish	white
peculiarity:	splitting	non splitting	splitting
SEEDS			
microstructure:	testa perforated with cell lines connecting	testa perforated with cell lines connecting	testa perforated with cell lines connecting
wart form:	flat-convex, clearly visible rough - very rough cuticular folding pattern	convex, clearly visible coarse cuticular folding pattern	convex, clearly visible fine cuticular folding pattern
cuticle:	clearly visible fine - coarse cuticular folding pattern	clearly visible coarse cuticular folding pattern	clearly visible fine cuticular folding pattern
length / width / colour:	1.1 – 1.4mm / 0.9 – 1.4mm / black	1.1 – 1.2mm / 0.9 – 1.1mm / black	1.1 - 1.3mm / 0.9 -1.1mm / black
chromosome number:	diploid n = 11	diploid n = 11	diploid n = 11
range:	Mexico W. San Luis Potosi, S. Nuevo Leon, S.w. Tamaulipas, E. Durango, N. Zacatecas, N. Guanajuato, S. Chihuahua and S. Coahuila	USA: Texas E. Brewster, Sutton, Terrell and Val Verde Counties Mexico: Northern adjacent Coahuila:	Mexico: Central Chihuahua: Nuevo Majalca – Cumbres de Majalca, Sierra el Tambor, Cusihuriachi, El Aguaje, Terrazas, S. Cuauthemoc



blue spot = *pectinatus* subsp. *rutowii*
 red spot = *pectinatus* subsp. *pectinatus*
 green spot = *pectinatus* subsp. *wenigeri*
 pink spot = colourful blooming infraspecific hybrids
 (or transitional forms between the subspecies)
 yellow dot = indicates type localities



Fig.2 Flower section of *E. pectinatus* subsp. *rutowii*



Fig.3 Flowers of *E. pectinatus* subsp. *rutowii*

higher rib count, different flower and fruit colour, and its western location of allopatric distribution without overlap of areas.

Description

Single stem - hardly clumping, 17-22 ribs, 13-22 radial spines and 1-7 central spines.

Flower yellow - orange, ripe fruit reddish brown - dark purple with white pulp.

Material examined

Echinocereus pectinatus subsp. *rutowii*

Echinocereus pectinatus subsp. *rutowii*:

Holotype: Herbarium sheet Herbarium Staatliches Museum für Naturkunde Karlsruhe; Collector: *Anonymous* s.n., Mexico, Chihuahua, Municipio de Chihuahua, east El Olivio, 1650 m NN, April 2011, [KR 021723]

Cereus dasyacanthus: Herbarium sheet Harvard University, Gray Herbarium; Collector: C.G. *Pringle* 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; GH bar code 247466

Without name: Herbarium sheet Harvard University, Gray Herbarium; Collector: *E. Palmer* 3, 1300 m, Mexico, Chihuahua, Municipio Chihuahua, Vicinity of Chihuahua; GH bar code 244391

Cereus dasyacanthus: Herbarium sheet Royal Botanic Gardens; Collector: C.G. *Pringle* 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; K Sheet No.: 1522 bar Code: 000101092

Without name: Herbarium sheet Missouri Botanical Garden; Collector: *E. Palmer* 3, 1300 m, Mexico, Chihuahua, Municipio Chihuahua, Vicinity of Chihuahua; MO Sheet No.: 2016866

Cereus dasyacanthus: Herbarium sheet Friedrich-Schiller-Universität Jena, Institut für Spezielle Botanik, Herbarium Haussknecht; Collector: C.G. *Pringle* 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; JE Sheet No.: Bar Code: 0002259

Echinocereus pectinatus var. *pectinatus* (yellow form): Royal Botanic Gardens; K spirit 73474.000



Fig.4 Holotype sheet for *E. pectinatus* subsp. *rutowii*

Cereus dasyacanthus: Herbarium sheet Royal Botanic Gardens; Collector: C.G. *Pringle* 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; K Sheet No.: 1522 bar Code: 000101092

Cereus dasyacanthus: Herbarium sheet Academy of Natural Sciences Botany Department; Collector: C.G. *Pringle* 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; PH bar code 52903

Cereus dasyacanthus: Herbarium sheet Academy of Natural Sciences Botany Department; Collector: C.G. *Pringle* 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; PH bar code 52902

Photo: Jürgen Rutow

Fig.5 *E. pectinatus* subsp. *rutowii* at the type locality

Cereus enneacanthus: Herbarium sheet Academy of Natural Sciences Botany Department; Collector: C.G. Pringle 252, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; PH bar code 52904 [Author note: There are two different taxa mixed here: The flower of *E. enneacanthus* and body with flower remnant of *C. Pringle* 254]

Cereus dasyacanthus: Herbarium sheet Rancho Santa Ana Botanic Garden; Collector: C.G. Pringle 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; RSA-POM Sheet No.: 317827

Echinocereus dasyacanthus: Herbarium sheet Rancho Santa Ana Botanic Garden; Collector: E. PALMER 1, 1300 m NN, Mexico, Chihuahua, Municipio Chihuahua, vicinity of Chihuahua; RSA-POM Sheet No.: 317826

Echinocereus pectinatus: Herbarium sheet University of Missouri, Dunn-Palmer Herbarium; Collector: D.B. Dunn & D.G. Ledoux 22252, Mexico, Chihuahua, Municipio Gran Morelos, 10 miles west of General Trias

Photo: Uli Dosedal

Fig.6 *E. pectinatus* subsp. *rutowii* at the type locality

(El Aguaje/Santa Rosa); UMO Sheet No.: 137255

Cereus dasyacanthus: Herbarium sheet Royal Botanic Gardens; Collector: C.G. Pringle 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; UPS Sheet NO.: 260562

Cereus dasyacanthus: Herbarium sheet University of Vermont, Pringle Herbarium; Collector: C.G. Pringle 254, Mexico, Chihuahua, Municipio Chihuahua, hills and plains near Chihuahua; VT bar code 27002

Summary

During the 1990s the Echinocerei of the 'pectinatus Group' have been the subject of detailed examination by various experts; results of their work have subsequently been published. Regrettably, several of these publications included errors and mistakes with regard to the description and specifications of individual taxa as well as with regard to their distribution (Blum 1998, Frank 1997). In the meantime our knowledge of the morphology, including the analysis of the ploidy, has

substantially improved; this includes the observation of various locations. Accordingly, our understanding of all related issues is much deeper (tetraploid: *E. ctenoides* (Engelmann) Lemaire, *E. dasyacanthus* Engelmann; diploid: *E. pectinatus*).

But it has also turned out, that the most western populations of *E. pectinatus* differ from the concept of the type and nominated form which have been in use so far. These are now defined as a new subspecies, namely *E. pectinatus* subsp. *rutowii*.

Subspecies *rutowii* is different from subspecies *pectinatus* since it shows fewer radial spines, different flower colour, different fruit and pulp colour, and also a parapatric geographical distribution. The differences between subspecies *rutowii* and subspecies *wenigeri* are noticeable since there are more ribs, the colour of both the flower and the fruit is different as well as the north-eastern allopatric geographical distribution.

This new subspecies which has (very attractive) yellow-orange flowers honours the work and merits of Jürgen et Ruth (†) Rutow who have invested time and work into the documentation of the genus *Echinocereus* and into the publication of their findings, resulting from their joint field work and supporting studies and writing back home in the office. This work included Jürgen's long lasting job as the editor of the 'Echinocereenfreund' and the publication of a monograph - neither of which would have been possible without Ruth's support - Jürgen's Ruth and our Ruth.

Acknowledgements

I would like to thank all those who have helped with the drafting and publication of this article. More specifically I would like to thank (in alphabetical order):
 Dosedal, Uli, Rhauferhn
 Mettenleiter, Gabriele, Vöhringen-Thal
 Rutow, Jürgen, Kelmis, Belgium
 Seeger Dieter, Giessen
 for the provision of information and visual material and for their general support as well as the above herbaria.



Photo: Uli Dosedal

Fig.7 *E. pectinatus* subsp. *rutowii* at the type locality

Deutsche Zusammenfassung

In den 1990er Jahren wurden die Echinocereen der « Pectinatus-Gruppe » von verschiedenen Autoren untersucht und die Ergebnisse publiziert. Leider sind damals auch fehlerhafte Darstellungen publiziert worden, was die Beschreibung der Merkmale der einzelnen Taxa ebenso betrifft wie die Verbreitungsgebiete (Blum et al. 1998, Frank 1997). Durch die mittlerweile deutlich verbesserten Kenntnisse zur Morphologie, einschließlich der Untersuchung der Ploidie und Beobachtungen an den Standorten wurde ein besseres Bild der einschlägigen Arten (tetraploid: *E. ctenoides*, *E. dasyacanthus*; diploid: *E. pectinatus*) gewonnen.

Es erwies sich aber auch, dass die westlichsten Populationen des *E. pectinatus* vom bisherigen Konzept der Art bzw. der Nominatform abweichen. Diese werden nunmehr als neue Unterart verstanden und hier formal beschrieben: *E. pectinatus* subsp. *rutowii*. Dieses Taxon unterscheidet sich von subsp. *pectinatus* durch weniger Randdornen, unterschiedliche Blütenfarbe und unterschiedliche Frucht- und Fruchtfleisfarbe sowie einem parapatrischem Verbreitungsgebiet. Von subsp. *wenigeri* unterscheidet sich subsp. *rutowii* durch mehr Rippen, unterschiedliche Blütenfarbe, unterschiedliche Fruchtfarbe sowie dem nord-östlich gelegenen allopatrischen Verbreitungsgebiet.

Diese neue Unterart mit attraktiven gelb-orangen Blüten ehrt Jürgen und Ruth (†) Rutow und würdigt ihre beider Verdienste um die Dokumentation der Echinocereen und die

Publikation dieser Ergebnisse, sei es auf gemeinsamen Reisen oder in der Schreibwerkstatt, in der Jürgens Arbeit als langjähriger Editor des « Echinocereenfreundes » und einer Monografie ohne den Rückhalt seiner und unserer Ruth nicht denkbar gewesen wäre.

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TRAVEL WITH THE CACTUS EXPERT (11)

Zlatko Janeba continues his adventures in the US. This time amongst the spectacular scenery of Utah where lots of *Sclerocactus* can be found.

Photographs by the author



Fig.1 Our camping site on the shore of the Recapture Dam (Utah).

We enjoyed breakfast at our camp near the waters of the Recapture Dam [Fig.1]. From my previous visits to this area I knew that *Sclerocactus parviflorus* is quite common on the surrounding hills, but we did not mean to spend anymore time there. Our goals for the day were other sclerocacti (*S. parviflorus* ssp. *terrae-canyonae* & *S. wrightiae*) and we wanted to reach the small town of Torrey in central Utah by the end of the day.

We headed south along U.S. 191 through Blanding and then turned west along SR 95 towards Hanksville. We did seven stops along the SR 95 (between elevations of some 1600 to 2000m, within some 35 miles of the junction of SR 95 and U.S. 191). The landscape was gorgeous there, mostly formed by reddish sediments with sparse juniperus-pine forest [Fig.2].

We commonly observed flowering plants of *Echinocereus triglochidiatus* ssp. *mojavensis*, *Sclerocactus parviflorus*, *O. pheacantha* (v. *juniperina*), flowering *O. polyacantha* (including *Opuntia polyacantha* v. *hystericina*), *O. whipplei*, *Yucca baccata* and *Y. aff. glauca*. *Sclerocactus parviflorus* was usually in bud, only at one spot (about 11 miles west of the junction) were they in flower [Fig.3]. At all places we saw scleros only with pink to purple (no yellow to yellowish green) flowers, well, actually mostly with buds.

Some 35 miles west of the junction we found an interesting population of opuntias with smaller pads, growing in the reddish sandy soils (1985m). Some plants were completely without any spines, bearing only quite annoying glochids, and I believe this is the typical plant described as *Opuntia pinkavae*. But

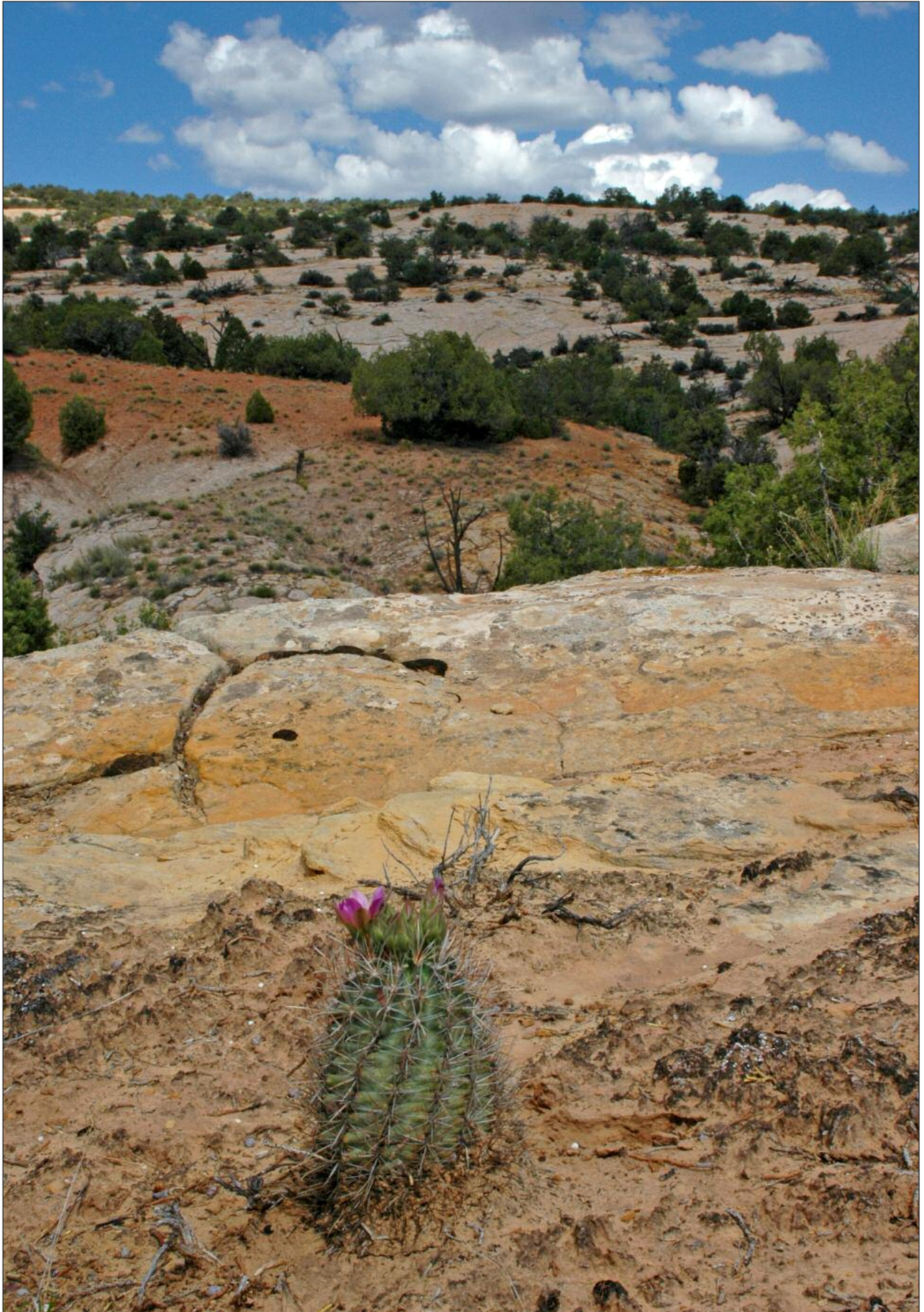


Fig.2 The scenery along S.R. 95 is gorgeous and *Sclerocactus parviflorus* is a common cactus there.

there were also plants with short spines, others armoured with numerous long spines, as well as every possible transition form between the two extremes. I took a segment of the spineless form with me and I still keep growing it today. It is easy plant, absolutely frost hardy in our central European climate (with some cover during wet winters) but I have to admit, it has never flowered for me yet.

Some 40 miles west of the junction (about 10 miles from the Fry Canyon) we stopped to shoot pictures of very beautiful scenery [Fig.4]. There, at an elevation of 1830m, we finally could see the yellow-flowering form of *Sclerocactus parviflorus*, described by Ken Heil as *S. terrae-canyonae* in 1979. Although its taxonomical status was changed to subspecific level some 15 years later, nowadays it is not usually recognized at all by the authorities and falls within the quite variable *S. parviflorus*. Nevertheless, it is a nice form and should be kept separate from the others. It is distributed in the southeastern corner of Utah and its distribution range does not seem to be as restricted as originally assumed. We



Fig.3 Flowering *Sclerocactus parviflorus* at same place as in Fig.2.



Fig.4 Beautiful scenery with sandstone formations along S.R. 95, the home of *Sclerocactus parviflorus* ssp. *terrae-canyonae*.

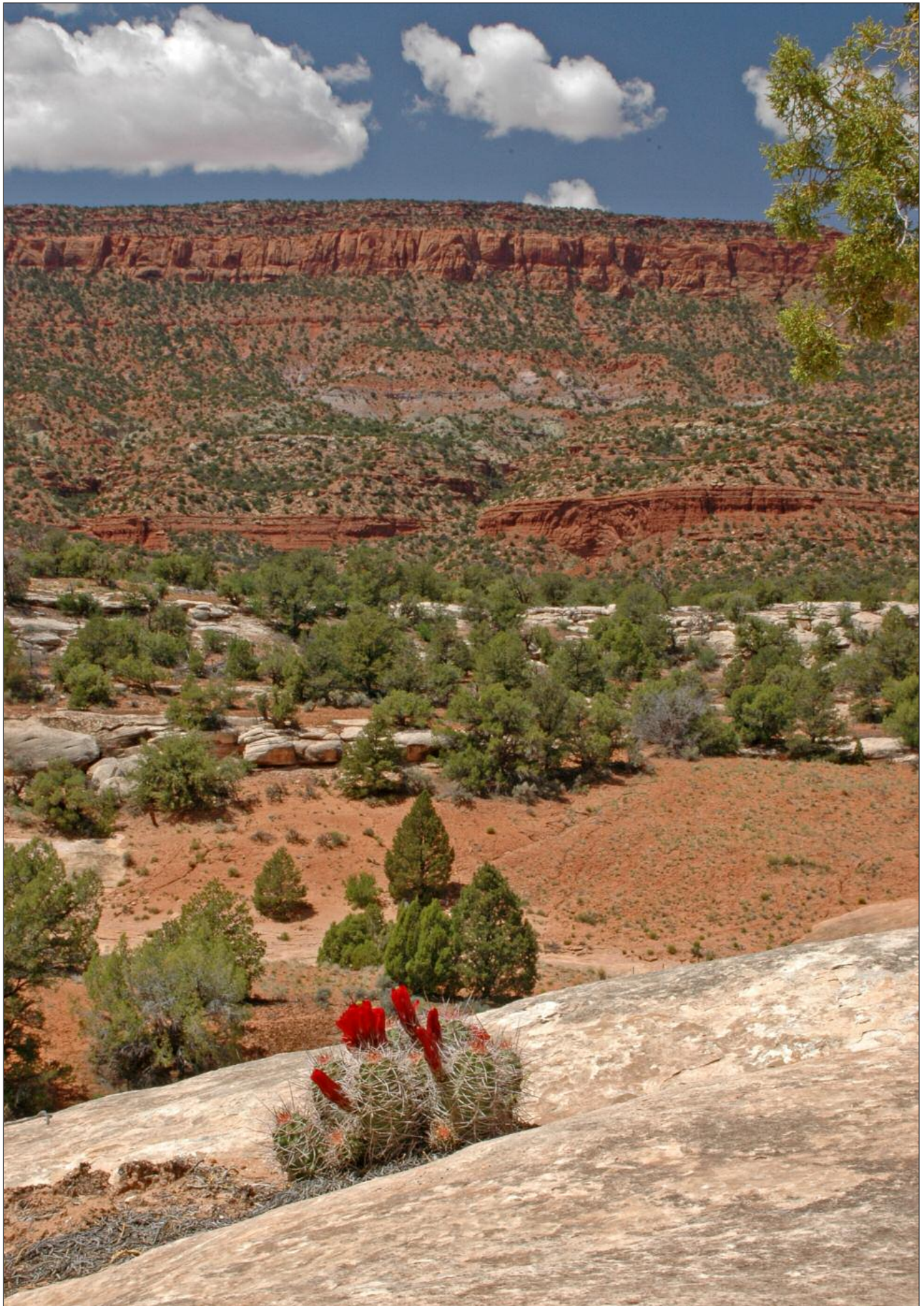


Fig.5 Landscape along S.R. 95 with *Echinocereus triglochidiatus* ssp. *mojavensis*.



Fig.6 A specimen of *Sclerocactus parviflorus* ssp. *terrae-canyonae* loaded with flower buds. The location as in Fig.4.

unfortunately did not see any open flowers. There were only copious light green flower buds [Fig.6]. There again grew various forms of opuntias.

The next place to visit was a population of *S. parviflorus* I had already visited several years before (~43 miles from the junction, 1790m), but this time we encountered only a single living specimen, together with numerous dead plants and mummies.

We took more pictures of sclerocacti (with buds, but apparently the yellow flowering form) and of flowering *Echinocereus triglochidiatus* ssp. *mojavensis* [Fig.5, 1620m] about 51 miles from the junction, but later (60 miles and more from the junction), at even lower elevation (~1450m and below), we could find the pink flowering scleros again, together with *Echinocereus triglochidiatus* ssp. *mojavensis*, flowering yuccas, and flowering *Opuntia polyacantha* v. *hystricina* [Fig.7].

Then we crossed the Colorado River [Fig.8]



Fig.7 Nitidulid beetles (Nitidulidae) feeding on flower of *Opuntia polyacantha* v. *hystricina*.



Fig.8 A view of the Colorado River.



Fig.9 A very attractive form of *Sclerocactus parviflorus* with long white spination.

and on the other side of the river we stopped as we noticed more flowering yuccas (*Y. aff glauca*). A little bit further (~80 miles from the junction) we discovered a very nice *Sclerocactus parviflorus* population (1200m). Although there were standard looking plants of this species, there we also saw probably the most attractive



Fig.10 Beautiful landscape where *Sclerocactus wrightiae* is at home. Henry Mountains in the background.

form with quite long (up to 8cm) centrals and with overall white spination [Fig.9].

If I had seen these plants near Johannesburg in California, I would undoubtedly have considered them to be *Sclerocactus polyancistrus* f. 'albino'. It really was a bad luck as the copious fruits circling the tops of the plants were not ripe yet. Several more typical *S. parviflorus* specimens still bore their last dark pink flowers. It was quite a hot early afternoon (33°C in the shade at 3 p.m., 51-53°C on the soil and 34-35°C some 5cm deep in the soil).

We took several pictures of scenery from a view point overlooking the Colorado River and headed further towards Hanksville. In that area, *Sclerocactus wrightiae* abounds. This species grows in dry areas of south-central Utah and locally can be really abundant. Relatively large old specimens can be encountered in many places in its distribution range (up to 20cm tall, maybe more). On the other hand, this interesting species is able to flower as a tiny seedling, often at the size of only 2cm in diameter.

Some 5 miles south of Hanksville we observed a very rich population of *S. wrightiae*

(1420m). There were plants from tiny seedlings to adults, which were loaded with unripe fruits as the flowering season was over. We stopped two more times to shoot the scenery [Fig.10].

Then we passed Hanksville, joined the S.R. 24, and just past the city, we took the dirt road (Henry Mtns. Access Rd) towards the Henry Mountains. There, after about 5 miles of driving the dirt road, we visited a location of *S. wrightiae* which Josef Busek studied in 1976 (30 years before!). This location was given to him by Kirkpatrick from Barstow (California).

There we saw numerous sclerocacti of all sizes growing in the flat area, as well as along low rolling hills in the reddish sandy soil (1450m). Again, all adult plants were bearing numerous fruits [Fig.11]. *Opuntia polyacantha* also grew there. It was 6 p.m. already and it was still quite hot (27°C, 37°C on the soil and 32°C at 5cm deep in the soil). We also saw some more *S. wrightiae* plants on the way back to Hanksville, about 4.5 mile south of the S.R. 24.

Although it was getting late, we decided to make a quick stop near Notom (Ut) at one of



Fig.11 *Sclerocactus wrightiae* loaded with fruits, at the same place as in Fig.10.



Fig.12 A specimen of *Pediocactus bradyi* ssp. *winkleri* bearing fruits. Notice the shells typical for the soils at this location.

the most pronounced locations of *Pediocactus bradyi* ssp. *winkleri*. But, as at the previous places, both *P. bradyi* ssp. *winkleri* [Fig.12] and *S. wrightiae* had just finished flowering and only unripe fruits were decorating the cacti. The habitat at this location is very dry, resembling a monotonous moonscape [1530m, Fig.13]. The only lively colours there were the red flowers of *Castilleja chromosa* [Fig.14], highlighted by low setting sun.

Later we headed to Torrey. In the evening we managed to find house of Eberhard Lutz (a German living in Torrey, collecting cactus seeds under his field number LZ) and we were lucky he was at home [Fig.15]. But, since his wife was not very happy about our unannounced visit, after a short chat with Eberhard we ended up in a nearby Econolodge (\$65).

[Zlatko Janeba](#)



Fig.13 A typical view of the habitat near Notom, Utah, where *Pediocactus bradyi* ssp. *winkleri* and *Sclerocactus wrightiae* abound.



Fig.14 Desert Indian Paintbrush (*Castilleja chromosa*) near Notom.

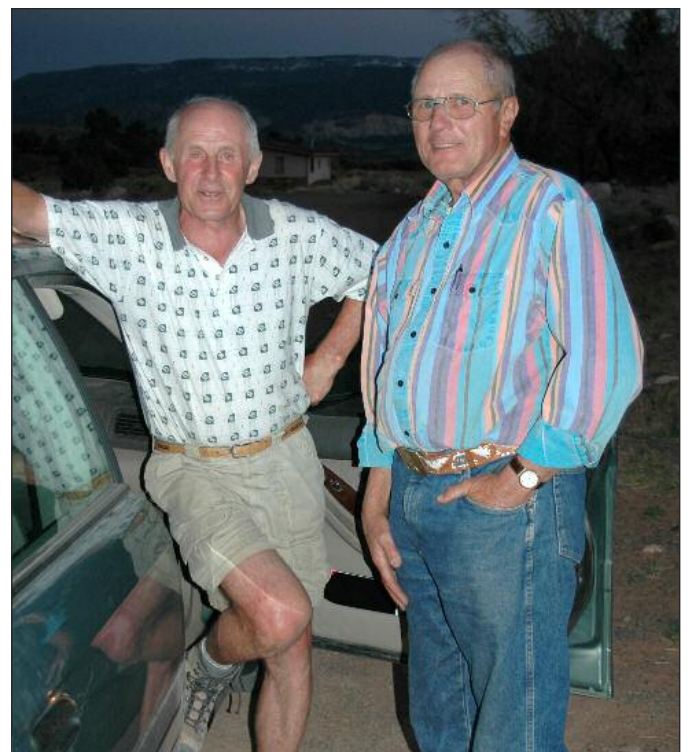


Fig.15 The evening encounter of Josef Busek and Eberhard Lutz in Torrey, Utah.

AN UPDATE ON AYOPAYA, BOLIVIA

John Carr returns to Ayopaya on his quest for some *Sulcorebutia* species which have proved difficult to find over the years since their descriptions

Since my article in the **Cactus Explorer** 8: 30-36, I have made another visit to the area to further develop my understanding of the plants in the region. I was again accompanied by Johan de Vries and on this occasion we went in late September, as on our previous visit we were too late for the flowers of some species in this area.

We travelled further east than on our previous visit but found no further sites of *Sulcorebutia*. The road sloped downwards towards the river and the vegetation changed to tropical forest despite being at the same altitude as *S. menesesii*. We did, however, find a

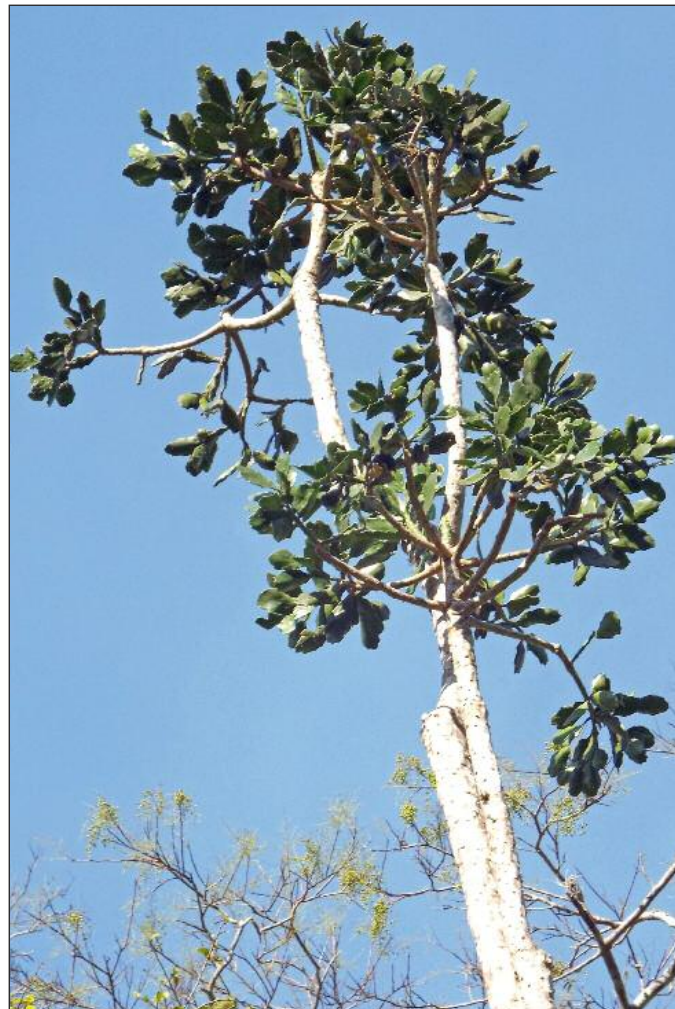


Fig.1 *Brasiliopuntia brasiliensis*

Photographs by the author cactus there in the form of *Brasiliopuntia brasiliensis* [Fig.1]. The local farmer [Fig.2] told us that his family ate the fruit when it was ripe.

Also seen was a family of Tayra (*Eira barbara*) [Fig.3] apparently this species is widespread ranging from Mexico to Argentina but it was the first time we had seen it. The locals allegedly encourage these to stay near habitation by feeding them as they keep down the rat population. However, they do not make good pets as the smell can be overpowering! They are often found in threes but little is known about their breeding relationships.

We then returned west to revisit the site of *Sulcorebutia glomeriseta* discovered on our last visit. This time we were in luck as plants were in flower [Fig.4]. We were surprised however that the flowering season was almost over so the main flowering period must be in late August to early September, quite early for *Sulcorebutia*. This is probably because the wet season starts earlier in the north and is preceded by weeks of low cloud and limited sun.



Fig.2 The farmer and his family



Fig.3 Tayra, *Eira barbara* at play



Fig.6 Overlooking the site of HJ1289a



Fig.4 *Sulcorebutia glomeriseta* JC 03-12



Fig.7 HJ 1289 (JC 01-13)



Fig.5 Remains of an Inca outpost



Fig.8 *Sulcorebutia menesesii* JC 02 -1

After this location we went on to another previous site where we had seen *S. menesesii*. We found the population much reduced and when speaking to a local discovered that the site is visited regularly by historians from all over the world as it is close to an Inca settlement [Fig.5] so this, and obvious over grazing, may be the cause of its decline. The

local was also able to give the Latin name for the local *Parodia* (*Parodia ayopayana*). As the Incas are known to have collected plants and grown them near their settlements it maybe that this is not a natural site for the *Sulcorebutia* although it is probably the type locality!

Our next site was further west and was first



Fig.9 Site of *S. candiae* ssp *kamiensis* JC 06-12 in 2013

found by Hans Jörg Jucker (HJ 1289a). At around 2500m it is a scenic site overlooking a river [Fig.6]. The plants here are somewhat different from other populations in the area with tight slightly curled spines [Fig.7] and it remains to be seen whether another name will be needed for these plants. Further along the road we found a site at a lower altitude and a second site of *S. menesesii*. The plants here were quite spectacular with spines up to 50mm long [Fig.8]. There were other slopes in the vicinity



Fig.10 *Sulcorebutia* sp. at river level near Kami JC 04-13

that also looked promising but access was difficult so we travelled on.

We have developed our travelling arrangements over the years and now spend most nights in the car. We ask our car supplier to remove the rear seats. We then line the floor with cardboard (from the supermarket) and roll out sleeping bags and put all our gear in the front. With the addition of sleeping bags, or blankets in my case as I cannot sleep in a



Fig.11 Power station and polluted river near Kami

tight bag, a reasonable nights sleep can be obtained and we get longer hours in the field each day. An occasional wash in a river and a daily wash of my feet keeps the smell to a minimum! Altitude is important when selecting a camping spot as the temperature can drop to -5°C at 4000m but may not go below 20°C at 1500m, so 2500m to 3000m is ideal.

We then decided to travel to the western end of the region to take another look at our *Sulcorebutia candiae* ssp. *kamiensis* site from last year. I was somehow not surprised to see that the farmer had been busy at this site and had effectively cut the site into two by ploughing the land between two ridges [Fig.9]. Many plants must have been lost from this site and the farmer will no doubt hack a little of the ridges away each coming year until the plants are eradicated. This of course is not a problem if you are a lumper but is disastrous if you are a splitter. Small populations of *Sulcorebutia* often show distinct differences from adjacent populations so the loss of these often unnamed populations all over the country may well lead to a very different and false picture of the diversity of the genus in the future.

We spent the rest of the day at lower altitudes searching for the plant found by Chris Sherrah and were successful to a limited extent. We saw only 3 of these larger plants on completely inaccessible slopes and cannot be sure of its identity or numbers [Fig.10]. The rivers here are heavily polluted because of mining and refining and the whole area is dotted with small mining operations [Fig.11].

The next day we found further sites of *S. candiae* ssp. *kamiensis*. Here the plants were not the pectinate form found at the first site but more heavily spined plants [Fig.12]. Because of the variability of the plants in this area and its separation from *S. candiae* it would perhaps be better to put all these populations under *S. mushii*, however, I have left them as *S. candiae* ssp. *kamiensis* for the purpose of this article.

The altitude ranged from 3700m to 2500m with plants found at three sites including one cristate plant [Fig.13]. We spent the night near Independencia and it rained most of the night.



Fig.12 *S.candiae* ssp *kamiensis* JC 05-13



Fig.13 A cristate plant of *S. candiae* ssp. *kamiensis*

The following morning we set off to complete our search in this area but a number of tracks of three point turns led us to get out of the car and examine the next bend despite the continuing rain. The road after the bend was a steep climb with one set of tracks having completed the climb. The tracks, however, showed that the vehicle had come very close to the edge of the cliff and everyone else that morning had turned round rather than attempt the climb. We also decided that it would be foolhardy to go further in the wet and abandoned our attempt to look for *S. candiae* and *S. arenacea* if only to update our photographs to digital. This proved to be the correct decision as the rain continued for the remainder of the day as we returned slowly to Cochabamba.

I guess that means I will have to return one more time to Ayopaya!!!

[John Carr](#)

MAIHUENIOPSIS LEONCITO

Graham Charles writes about this rarely cultivated plant. Recent molecular studies have clarified relationships in *Maihueniopsis* but the position of Chilean species is still unclear.

Photographs by Philippe Corman



Fig.1 *Maihueniopsis leoncito* RCPB288. 2850m

One of the Chilean populations of *Maihueniopsis* was named as *Opuntia leoncito* by Werdermann (1929). The species name derives from the local word for the plant, which alludes to its appearance being similar to a lion (Puma) lying on the ground because of its silvery spines. Werdermann had found it on his expedition in 1926.

The type locality was given as Cord. Rio Turbio, Co. Cadillal, Depto. Copiapó, Prov. Atacama, Chile at 3800m. I have never seen this plant in habitat, nor have I cultivated it, so when Philippe Corman told me he had been there and had pictures, I was keen to publish them.

Philippe saw the plant at a number of localities. RCPB 287, 288, 289 and 290, all in the same general area of the type locality at 2800-3110m. He commented to me on the variability of the plants as can be seen in the pictures.

Fred Katterman, a frequent visitor to Chile, wrote a series of articles about the *Opuntias* from there in the *Cactus and Succulent Journal* (US). In part III of the series, he dealt with *Maihueniopsis* and included a useful map showing where the twelve species names had been found. He claims to have found several populations of *M. leoncito* over a range of some 45km.



Fig.2 *Maihueniopsis leoncito* RCPB288. 2850m

When we participated in the Ritz et al. study (2012), the only documented sample of a Chilean *Maihueniopsis* available to us was a collection of *M. domeykoensis* GC141.04 I had made in 1994. This was not placed near to *M. glomerata* in the resulting tree suggesting that, although they look similar, they are not the same species.

It is tempting to think that other Chilean populations may represent good species, having probably been isolated for some considerable time. Treatments of Chilean cacti

by various authors over the years have accepted some of the available names for these plants, but the lack of clear morphological characters to differentiate them has made it difficult to determine their true relationships.

I hope that existing molecular studies can one day be extended to find out the status of the Chilean populations of *Maihueniopsis*.

Many thanks to Philippe Corman for the use of his excellent pictures.



Fig.3 *Maihueniopsis leoncito* RCPB289. 2920m



Fig.4 *Maihueniopsis leoncito* RCPB289. 2920m



Fig.5 *Maihueiopsis leoncito* RCPB287 One single plant on gravel, in the middle of a river bed. 2800m



Fig.6 *Maihueiopsis leoncito* RCPB290 On the gravel of river banks. 3110m



Fig.7 *Maihueniopsis leoncito* RCPB290. 3110m



Fig.8 *Maihueniopsis leoncito* RCPB290. 3110m

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Fig.9 *Maihueniopsis leoncito* RCPB290. 3110m



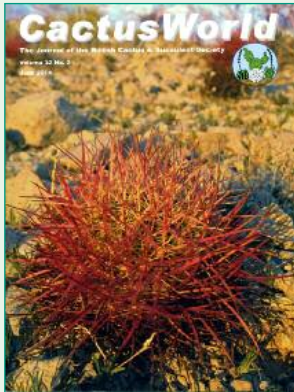
Fig.10 *Maihueniopsis leoncito* segments in order:
RCPB287 PCPB288 PCPB289 PCPB290



Fig.11 *Maihueniopsis leoncito*
RCPB288 (above)
PCPB290 (below) The smaller size is not significant.

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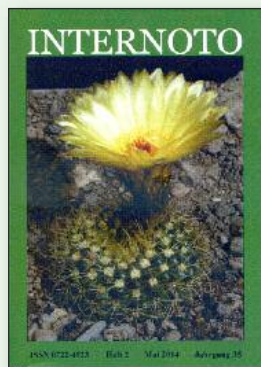
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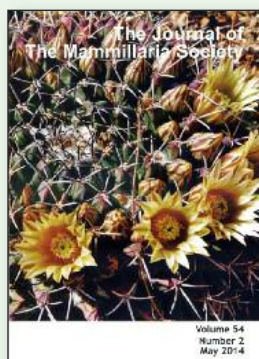
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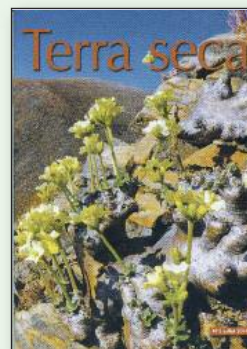
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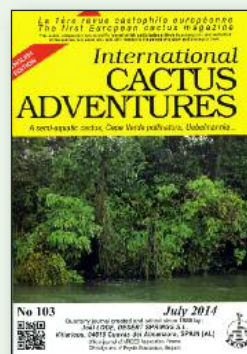
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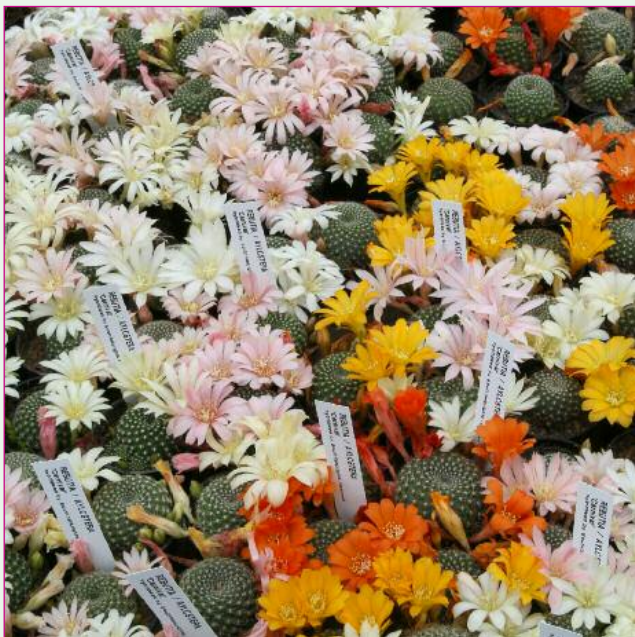
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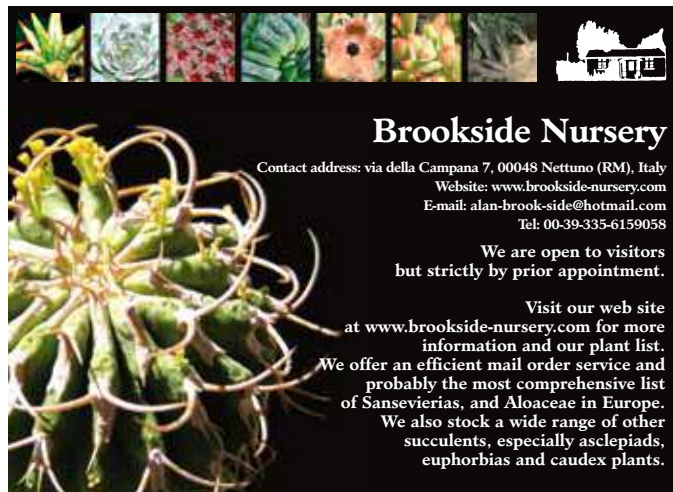
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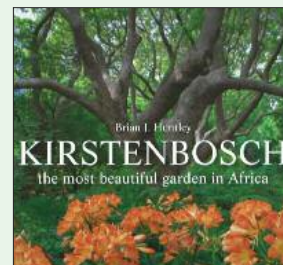
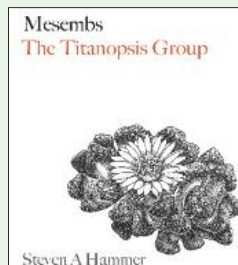
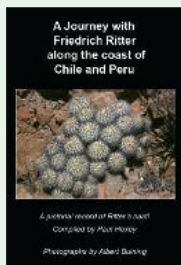
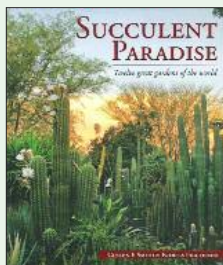
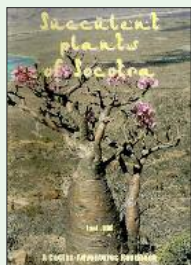
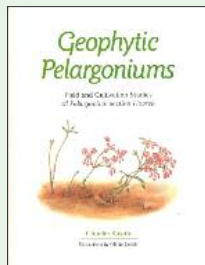
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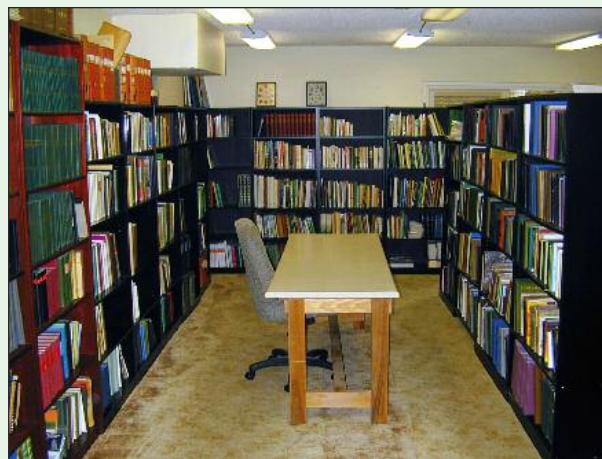
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