



The **Cactus Explorer**

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

Number 3

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February 2012

Mammillaria luethyi

Gasteria rawlinsonii

Echeveria penduliflora

Obregonia denegrii

Uebelmannia 'eriocactoides'

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The No.1 source for on-line information about cacti and succulents is <http://www.cactus-mall.com>
New link for Gymnocalycium enthusiasts (French): <http://gymnocalycium.free.fr/index.php>

Cover Picture: *Mammillaria luethyi* PH914.06, possibly several plants or a small cluster.
See the article on Page 30. Photo: Paul Hoxey.

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 separate jpeg or tiff images with the maximum resolution available, at least 1200 x 800 pixels.

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 3 months and the copy deadline is just a few days before the publication date which is planned for the 10th of February, May, August and November. 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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February 10th 2012

INTRODUCTION

What a welcome!

It is most pleasing that you are continuing to email me and tell me how much you are enjoying the **Cactus Explorer**. We really appreciate hearing from you, it is very encouraging to know that our efforts are appreciated!

I would particularly like to thank the authors who have contributed articles. Without any chasing from me, we had plenty of material for the last issue. In fact, it ended up being rather larger than I had planned. But, unlike printed journals, we can vary the size to accommodate what we have ready to publish. It was a bit scary to have nothing in hand when number 2 was published, but I need not have been concerned as you can see from this issue!

The files are actually created in a way which would allow printed versions of the journal to be produced to a good quality, although the links would, of course, be superfluous. I am aware that many potential readers may not be able to access the online version, hence the potential to produce print copies. The problem is that the small numbers of copies would make printed copies expensive. I suggest that when the first 4 issues are available, I shall investigate the cost of a printed and bound compendium volume. The high resolution files could also be sold on a CD ready to be printed if desired. Your views would be welcome.

I know that many of you pass the pdf files (or printed versions) on to others, an activity we encourage. The more readers the better! It appears that we now have thousands of readers worldwide so I am rather surprised that I have not had more response to my offer of free adverts. I would particularly like more amateurs to advertise their spare plants or requests for plants they are looking for. The propagation of rare plants in cultivation is a valuable conservation activity which should be encouraged.

For me, propagation is one of the most

rewarding aspects of cultivation, whether by seeds or cuttings. It is a practical activity which can help to reduce the demand for illegally-collected habitat plants by making desirable species available at reasonable prices. And for the propagator, any help with the cost of heating etc. must be welcome! I have repeated the links to seed sellers in this issue.

There is not much news at this time of the year but we would welcome organisers of events to tell us about what they are planning so that we can promote their events to our readership.

It is a pleasure to present an article about the digital library hosted by cactuspro.com which is primarily a French language site but there is plenty of material in English and other languages. It is a very valuable resource for looking up references in rare books and they would welcome your help in adding to the library.

I am keen to include articles about the other succulents, so the three in this issue are very welcome. We also have a couple of articles about searching for cacti in Mexico and a celebration of one of Britain's favourite authors, John Pilbeam.

The editorial team hope you enjoy reading No.3 and wish you a successful year with your plant activities. Be sure to tell your friends about the **Cactus Explorer**. I often get mails from people who have only just found it!

Graham Charles

The next issue of the **Cactus Explorer** is planned for May 2012. If you have not already told me and would like to be advised when it is available for download, please send me your E-mail address to be added to the distribution list.

Thank you for your interest and support!

NEWS AND EVENTS

Yann Cochard and Daniel Schweich tell us about their exciting Internet project, a useful resource for us all, not just French speakers. Perhaps you can help?

The digital library of books & articles on succulents

This digital library is freely accessible at <http://www.cactuspro.com/biblio/>

It all started in November 2006 with a goal to provide you with entire books related to cacti and other succulents on the internet. Later we added other type of documents like reviews, extracts from general publications, periodical articles, catalogues... These documents range in length from a few pages for the smallest to more than 2,000 pages for the largest (the complete list is available on our web site) and we continue to extend the library. In this article we present the objectives of this project, its history, its technical operation and a provisional balance. It is also an opportunity for us to recruit potential contributors.

The Project

Many publications have been written on cacti and other succulents. The first ones date back to almost three centuries ago. The frequency of publications has continually accelerated and new works, either general or more specialized, are published every year. Our project aims to provide access to these publications (particularly those that may not be accessible elsewhere, being too old or not available anymore) by providing them in digital format, mostly as PDF files available for downloading by the user. In order to be made available on our website, a publication should have fallen into the public domain or an authorization has been obtained from the author and publisher.

The library contains rare publications, some of them cannot be found anywhere else! By mid-2011, the content reached about 31,000 pages (as far as navigation pages are concerned, not scanned publications) (_O files are not counted – see the next paragraph), for more than 280 documents. The library is available in four languages: French, English,

Italian and German.

Some Technical Explanations

The publications are mainly in PDF format (but sometimes they come in HTML, RTF or TXT formats), available for free download. The files which are still under copyright protection are only for private, personal and non-commercial use and may be subject to specific use conditions. Public domain files are completely free of restrictions and can be used for any purposes.

The PDF files can be read by any PDF-compliant software like Acrobat Reader, Foxit PDF Reader, Kpdf, etc.

Publications are available in two additional formats:

- Original file (name_O.pdf): this is a raw digital copy made up of scanned images of the originals. The text search functionality is not available for such files. They are the indisputable reference but have the disadvantage of being large. When the original is provided by another website, a link to the corresponding site is provided for downloading.
- Interpreted file (name.pdf): the interpreted digital copy is re-formatted like the original. In these files the text search functionality provided by your PDF-reading software is available for use. You can also copy the text.

The size and the website publication date are indicated for each file.

The interpreted PDF file usually has two layers:

- **Text:** The text itself. Some corrections -that do not conform to the original- have been made for indexing purposes - so that automatic searches may be performed. This is



Fig.1 Rare Backeberg Catalogues



Fig.2 Famous catalogues from Fric and Kreuzinger

the reason why only the original file is to be used as a reference when including a citation in one of your future works.

- **Comment:** corrections, comments, questions, etc. This layer is invisible by default but can be displayed on demand (please refer to the appropriate "Help" section of your PDF-reader application).

Organisation

The library's website operates thanks to a special tool (a wiki) which allows each team member to edit the pages easily through their web browser (Internet Explorer, Mozilla Firefox, etc.) and with no need for any advanced technical skills. A discussion forum is also available to share information, tips & tricks, discuss new publications, etc.

To the Library Visitor

To access the library you must connect to <http://www.cactuspro.com/biblio/>. The page presents you with the list of documents that you can reach by clicking the author's name or the publication's title.

Over the past five years we have made available 287 documents, all interpreted, plus 5 links referring to documents provided by other websites. Below are examples of documents available in October 2011:

- Backeberg: three rare catalogs from the 30's (Fig.1); Die Cactaceae (volume 4 in progress); Blätter für Kakteenforschung and Kaktus ABC (Fig.3)

- Bradley: The history of succulent plants, 1716-1727. Probably the oldest illustrated book dedicated to succulents.
- Britton et Rose: The Cactaceae – the original of the "bible" (1919-1923) + the continuation by Marshall and Bock
- Förster: Handbuch der Cacteenkunde, 1846. Hard to read... in Gothic style (Fraktur). You can easily understand why we are not able to provide you with the interpreted version...
- Fric et Kreuzinger: two famous catalogues; although not praised by critics (Fig.2)
- Krainz et al.: Die Kakteen. 2,000 pages... Special thanks to Hans Jörg Krainz (son of Hans Krainz)
- Nel: Lithops: The first book dedicated to "living stones".
- Pilbeam: Gymnocalycium: Although John authorized the reproduction of his older publications, the publishers have refused...
- Rausch: The "Lobivia" from 1975 to 1985. With a French translation of Lobivia 85. An example of a book under copyright protection authorized by the author.
- Redouté & (de) Candolle: Histoire des plantes grasses, 1799... An extraordinary iconography.
- Říha & Šubík: The illustrated encyclopaedia of Cacti and other Succulents, 1981. Thanks to "Copyright, Designs and Patents Act" who allowed us to reproduce the English version of this excellent work for

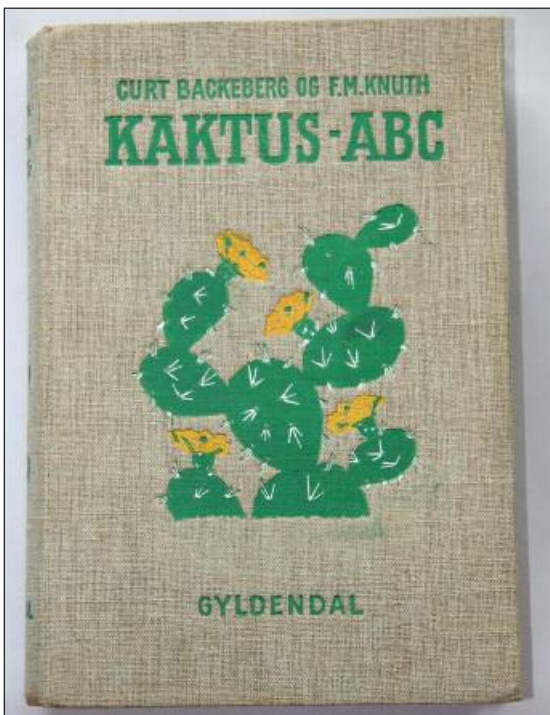


Fig.3 Backeberg & Knuth Kaktus-ABC (1936)

beginners while we were not authorized by the French publisher... Thanks also to Jan Říha & †Rudolf Šubík for their authorization.

- Ritter: Kakteen in Südamerika; Winter Kakteen Samen catalogues (Fig.4).
- Schumann, Gürke, Vaupel: Blühende Kakteen... and continuation by Werdermann with illustrations in Agfa-colours from the 30s.
- Watson: An "old lexicon" (1889) long before the "new".
- Cactus & Co: Old, out of print issues of this excellent Italian publication.
- Curtis's Botanical Magazine and Edwards's Botanical Register: Extracts dedicated to cacti and other succulents. A magnificent series of colour plates.

Thanks to the British Cactus and Succulent Society:

- Putnam: *Gymnocalycium*, 1978: Small book for beginners.
- Bradleya from 1983 to 1989 (out of print).
- Cactus and Succulent Journal of GB (in progress).

And soon:

- Compilation of Martín Cárdenas's publications: A new book prepared by Roberto



Fig.4 Winter (Ritter) catalogues from 1956-1960 Kiesling.

You can also visit our reading room: Most documents can be previewed (original image + interpreted text) to find the information you need or to know whether it's worth a complete download.

Finally, on the home page you'll find links that may be of help, such as:

- News: Visit the page regularly to be informed about new publications or updates...
- Contact us: No comment needed...

Contribution

It is one of the internet's advantages: you can easily participate, contribute to this project. It is possible regardless of your means and available time as it is detailed below:

New publications

If you are the author of a book (or heir), or if you know authors that might be interested in this project, or if you just want to inform us about a document that impasses you to participate in its preparation and publication to the library, we would be pleased to welcome your contribution. Your reasons may be various: The document is no longer published, you want to publish it differently, you wish to share it, etc. If you are in any of these situations, please contact us without hesitation (see at the end of the article).

Proofreading

The digital processing (scanning) of paper-works is still a difficult task because additional



Fig.5 One part of Werdermann's 'Blühende Kakteen und andere Sukkulente Pflanzen'

errors to those of the author and the original typesetter may be introduced. Proofreading consists of:

- Catching spelling mistakes, grammar or typing errors...
- Correcting any error (page inversion, captions, layout etc.).
- Comparing with the original to make the copy as faithful as possible, except for the author's errors and the possible corrections (s)he published.

NB: It is a long and tedious task. Start with short texts to get an idea of the amount and nature of the work and then decide whether to continue the adventure or not!

What to do if you find a mistake (or several...)?

- Make sure that it is really an error by comparing with the original (the ..._O.pdf file).
- Send us an e-mail (see the end of this article) with the description of the mistake and the correction.

N. B.: The progress of knowledge since the work was published may challenge what was initially written by the author. However, this should not be considered as a "mistake".

You are interested in copyright matters?

- Help us find and contact the heirs.

You have skills in computing?

- Help us to scan, interpret text, process images, prepare the page make-up...

You speak a few languages?

The library is available in French, in English, in Italian and in German. We need help to maintain all those languages and mostly to add new publications.

Conclusion

This is an exciting project which already allowed us to get in touch with many cactus and other succulent fans around the world. It allows knowledge sharing, to live our passion. We hope that the library will continue to get more and more complete, not only for you but also for us :)

You can contact us by email:

biblio3@cactuspro.com and in case you haven't visited the list of available documents yet, here is its web address:

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

Acknowledgements: in addition to the authors who have given their approval to reproduce their works, we would like to thank a lot the Missouri Botanical Garden (MBG) Library (<http://www.botanicus.org/>) for their precious help.

Yann Cochard and Daniel Schweich.

Translated by Bilyana Y.

Photographs by Graham Charles.

Thank you John!

In the first issue of the **Cactus Explorer**, I reported on the 90th Birthday of Gordon Rowley, one of the best-known characters in the succulent world. Here, I want to turn my attention to that relative youngster John Pilbeam, one of the most prolific British authors of articles and books about succulent plants.

Most of us must have at least one of his books and we are sure to have read a few of his articles written over so many years. John does not claim to be a botanist, but he has the ability to distil the literature about a subject and mix it with his rich experience to produce a readable account we can all enjoy. His many contacts give him access to pictures, enabling his books to be comprehensively illustrated.

So, what of the man?

His interest in cacti and succulents started when he first went to work in the City of London in 1949, and found two shops in Leadenhall Market (Baxter's and Henderson's) who had a regular delivery of these plants for sale at a shilling each. There was another source he discovered about the same time in Leather Lane street market by Gamages store, where a gardening barrow had a similar supply.

John says he can still remember the delight of finding *Crassula tecta*, with its wonderful textured leaves, and his disbelief at the name of a *Mammillaria* in a diminutive clay thumb-pot (made with a potter's thumb) which was



Photo: B. Weightman

John with the devil, Baja California 1981

labelled *Mammillaria gigantea*! The latter is now a multi-headed specimen in Derek Bowdery's emporium in King's Lynn. With these few purchases, John's obsession with these plants was kindled and has remained burning fiercely ever since.

He found that there were two appropriate Societies soon after this and agreed with a like-minded colleague to join one each and swap journals. John became a member of the Great Britain Society, and went to early meetings in Pimlico to meet the pundits of the day, welcomed as a desirable youthful member. He soon joined the National Society as well and attended the crowded school classroom meetings of the Croydon branch, and subsequently became Secretary (and general dogsbody) of the breakaway Bromley branch in the early 1970s, and has been there ever since.

By this time, John's glasshouse was bulging, with only one tomato plant grudgingly allowed space in it. He attended early judges' courses and, subsequent to satisfying the strict criteria, became a qualified judge and has judged many shows up and down the country (including the National) and a few overseas. John told me that on checking through the branch list, that he has given talks to over half the branches in the UK, a few abroad in the USA, Australia, Canada, Germany, Belgium, Holland, Italy, Ireland and France, as well as one unbelievably in Mexico.

John had already joined the emerging *Mammillaria* Society and then the African

Photo: D. Neville



Looking for an *Echeveria* John? It's behind you!!
In Hidalgo with *E. halbingeri* ssp. *sanchez-mejoradae*

Photo: D. Bowdery



John and David Neville, Quiotepec, Mexico 2010

Succulent Plant Society, and found himself writing pieces for all these Society journals as his interest increased, as well as providing some pen and ink drawings of Haworthias for inclusion. Overseas societies beckoned as well and he began collecting all the journals available at the time, and has done so ever since, also providing articles for these sporadically.

As well as these articles, he was persuaded to write some for a new publication, the 'Greenhouse', and was delighted to see for the first time colour reproduction of photographs included. In 1970 and 1975, he arranged the printing of two little booklets published by the Succulent Plant Institute, *The First Fifty Haworthias*, and *The Second Fifty Haworthias*. These opened the door to trips to the USA to give talks and, as a bonus, visits to Baja California, Mexico, and subsequently to mainland Mexico.

There followed an approach from publishers for 'serious' books on cacti and succulents that resulted in four publications with Batsford Books in the 1980s, on *Mammillaria*, *Haworthia & Astroloba*, *Sulcorebutia & Weingartia*, and lastly at the publisher's insistence *Cacti for the Connoisseur*. Two small books on *How to care for your Cacti* (and another for Succulents), enabled John to change his rusting old car, as the publisher insisted on a fee rather than royalties. Subsequently, John learned that over 50,000 were printed as well as an American version *The instant Guide to Healthy Cacti* (and the companion for Succulents) with a similar print run. The publisher clearly got the best of



John 'helping' Derek Bowdery, Mexico 2010

the deal!

Because of the limited number of colour pictures in the *Mammillaria* book of 1981, from 1983-1987 John published a series of loose-leaf A5 plates of *Mammillarias*, nearly 300 all told, with instructions for binding when they were complete. With a refusal of a proposed book on *Gymnocalycium* by Batsford, John found another willing publisher, A. A. Balkema in Holland, and this was published in 1995. At this time he was writing for the new magazine *The Cactus File*, and when it stopped publication, he wrote four books under its banner: *Thelocactus*, *Rebutia*, *Adromischus* (in harness with Chris Rodgeron and Derek

Photo: D. Neville



John gratefully resting in Tehuantepec, Oaxaca

Photo: D. Neville



John's nursery Connoisseurs' Cacti, full of the plants he likes and ones we would like as well

Tribble), and a much-expanded and full colour *Mammillaria*.

In recent years with David Hunt there followed *A Sulco Gallery* as a mute protest at its imminent sinking beneath a too-wide concept of *Rebutia*. And then the BCSS agreed to publish the last four books he has produced, *Ferocactus* (with Derek Bowdery), *Ariocarpus et cetera* (with Bill Weightman), *The Genus Echeveria* and *Stapeliads*, with another on *Echinocereus* just published. And one or two more are on the horizon.....

After his retirement from work in London in 1989, and desirous of more space to grow and propagate plants, John founded the nursery Kent Cacti in partnership with Doug Sizmur, subsequently to become parallel businesses. John's half has become famous under the cumbersome title, *Connoisseurs' Cacti*, referred to by his wife as 'Play School'. That was probably a good description, as it allowed John to propagate the plants he loves to grow,

which means a wide range of cacti and succulents, enabling him to make available to enthusiasts some of the more sought-after species. The titles of his books give us a good idea of the breadth of his interests. As well as being useful for reference, John's books are easy to read and reflect his love of the plants and the enjoyment of growing them.

As one of Britain's best-known personalities in the hobby, it is appropriate that he has recently become the President of the British Cactus and Succulent Society. Thank you John!

GC

Optimum conditions for seed germination

A paper in the online botanical journal *Biota Neotropical* (Socolowski & al. 2010) reports on germination tests carried out with the Brazilian cactus species *Cereus fernambucensis*.

The highest percentage germination took place at 25-30°C, although was still high for much of the range 15-40°C. Above and below

these extremes, the germination rate declines significantly. Alternating temperatures between night and day improved the rate of germination but did not affect the overall percentage. No seeds were found to germinate in the dark, since cacti have light sensitive seeds controlled by phytochrome. Some shade from direct sunlight was, however, beneficial.

These results are similar to those reported elsewhere, and the ideal temperature for germination confirmed as about 20-25°C, depending on the temperature range appropriate to the species in habitat.

For the paper itself, see www.scielo.br/pdf/bn/v10n2/05.pdf

For further information on phytochrome, see the entry in Wikipedia.

Literature cited:

Socolowski, Fábio, Mascia Vieira, Daniel Cristine, Simôlo, Edson, & Takaki, Massanori (2010). Influence of light and temperature on seed germination of *Cereus fernambucensis* Lemaire (Cactaceae). *Biota Neotropica* 10(2): 53-56. Centro de Referência em Informação Ambiental, CRIA (Reference Center for Environmental Information), Campinas, São Paulo.

Roy Mottram

Field Number Index

Following on from my note 'The Value of Field Numbers', I thought readers might be interested in a new place to look up field numbers. Most of us have habitually used Ralf Martin's [Field Number Database](#) to find plant names and localities for the numbers allocated by explorers in the field.

Recently, a friend, Christophe Ludwig from France, told me about his own on-line [Field Number search](#). You will see that this version is multi-lingual and has some field numbers not on Ralf's site. I found it useful for some Czech collectors' numbers which I had been looking for. It is also possible to see a list of numbers by genus and/or collector.

GC

The Mammillaria that moved!

Google Scholar is a wonderful way to search for information and it is surprising how many interesting papers are available for download. Sometimes they require a subscription but many can be freely downloaded without restriction. Often papers not directly focused on cacti can contain interesting snippets of information that place cacti within a wider context.

One such interesting paper I encountered recently describes a new subspecies of *Siphonorhis brewsteri*; a rare and little-studied bird from Cuba and Hispanola. This species is poorly known and infrequently seen due to its secretive and exclusive nocturnal habitat. Only in 1996 were chicks of this species found for the first time in habitat by the Cuban botanist Alberto Areces whilst searching for cacti in the Dominican Republic .

A small specimen of *Mammillaria prolifera* ssp. *prolifera* caught his eye but on closer examination, it moved and was in fact a small nestling. The plumage of downy feathers is reported to be a remarkably good match for the spination of the cactus species and the chick itself was of a similar size. On being discovered, it squatted down and stayed motionless; behaviour which further suggests it tries to mimic the cactus as a camouflage and to avoid detection by predators.

Several species of cacti have evolved to mimic other plants to avoid detection. Perhaps the best example is *Sclerocactus (Toumeyia) papyracantha*, a small cryptic plant whose spination matches the dried grasses in which it grows. However, this paper describes the first example of the opposite case of an organism mimicking a cactus. If any cactus explorers in the Caribbean encounter a *Mammillaria* that moves, then I hope they can report on their findings with some good photographs in this journal!

The paper which illustrates both the cactus and the chick can be found online at : <http://caribbeanahigroup.org/pdf/solenodon3/06siphonorhis.pdf>

Paul Hoxey

A New Escobaria: *E. abdita*

A new species of Escobaria, *E. abdita*, has just been published in CSJ(US)83(6):264 (2011) and some habitat photos can be seen at the link below. The generic placement of the plant is not at all clear from the online photos but it is just possible to make out the frilly edges of the petals which is a character of Escobaria. We hope to bring you more details on this distinctive new species in the next issue of the **Cactus Explorer**.

<http://forum.cactipedia.info/resources/image/39106>

Paul Hoxey

Bulletin of the SLCCS

The latest Bulletin of the SLCCS is available for [free download](#) (Spanish). It is Volume 8, No.3, Sept.- Dec. 2011. We hope you enjoy it and, as always, we ask that you please distribute it among your colleagues, friends and institutions who might be interested in the information contained in this publication.

Jafet Nassar

Editorial Committee of SLCCS

IOS Meeting to be held in Cuba

The next Congress of the IOS (International Organisation for Succulent Plant Study) will be held in Cuba from July 3rd- 6th 2012. In addition to a programme of lectures, there will be some field excursions to see the country's native succulents. Anyone interested is welcome to attend. Details [here](#).

The IOS is a group of people with an active interest in studying various aspects of succulent plants, including botany, conservation and cultivation. The congresses are for the presentation of results and discussion on current study topics. Abstracts of lectures presented at the congresses can be seen at <http://www.iosweb.org>, together with other information about the IOS.

The annual publication Repertorium Plantarum Succulentarum lists all new names of succulents in all families, together with a bibliography of new publications.

Len Newton, President IOS



2012 The Year of the National Show

Every four years, the British Cactus and Succulent Society organises its National Show and 2012 is the next. If you are planning to be in Britain in August, maybe for the Olympic Games, it's an event not to be missed. The venue is about one hour's journey north of London, near to the A1.

The competitive show has 134 classes and attracts the best plants in the country. As well as the show, there are lots of trade stands selling plants, books and accessories so a great day out is guaranteed. The BCSS National Show Saturday 18th August 2012 at Wood Green Animal Shelter, Godmanchester, near Huntingdon.

http://www.bcsc.org.uk/nat_show.php

There are many local show, meetings and sales held in Britain every year. The BCSS publishes a list which you can view on-line at

<http://www.bcsc.org.uk/events.php>

GC

It is with sadness that we report the recent death of Hans Till, the famous Gymnocalycium specialist from Austria.

Hans Till 1920-2012

The next meeting of the Cactus Explorers Club will be at Beaumont Hall, Leicester, UK
September 14-16th 2012

Guest Speaker: Davide Donati

<http://www.cactusexplorers.org.uk>

RECENT NEW DESCRIPTIONS

Graham Charles tells about *Cumulopuntia iturbicola* a dwarf *Opuntia* he described as a new species in *Cactaceae Systematics Initiatives* 25:12 (2011)



Fig.1 Habitat GC180, the type locality of *Cumulopuntia iturbicola*, 3446m, west of Iturbe, Jujuy, Argentina

I have been lucky enough to be present when a number of new cactus species were actually discovered. Of course, it is a matter of opinion as to whether a plant you find in habitat is a new species or a form or a variety of one already known. Some species are very variable in appearance, resulting in many superfluous names having been created.

The more desirable the plant is to cultivate, the more likely it is to get a lot of names. Specialists in a particular genus are more likely to look for differences rather than similarities, resulting in every variant getting its own name. A population can become isolated from others of the same species so that an exchange of genes is no longer possible. Over time, this can lead to changes in appearance and create the human desire to give the plants a new name.

So, if you find a population of plants in

habitat that doesn't quite fit your concept of any known species, what do you do? I tend to be cautious about describing a plant as new, so wait until I am sure. Molecular studies can sometimes provide the support you need to decide.....

It was 1995, during my second visit to Argentina, travelling with my friends Chris Pugh and Roger Ferryman. We had been visiting cactus habitats for a week or so in the north of the country, enjoying the high-altitude locations with many flowering plants and spectacular views across the landscape. We spent the night of December 11th at the town of Humahuaca, a popular tourist destination in a broad valley of the same name, which runs south-north and leads from the city of San Salvador de Jujuy, Argentina into Bolivia.

In the morning, it was a short journey north along the main road to the turning for the road



Fig.2&3 (left) & Fig.4 (above) *Cumulopuntia iturbicola* GC180.09 at the type locality showing flower colours. to Iruya heading eastwards. The journey to the village, which lies in the next major valley to the east, is spectacular to say the least but that was not our objective on that day. We wanted to explore around the village of Iturbe which is only a few kilometres from the turning.



Fig.5 (below) *Cumulopuntia iturbicola* GC180.09 in cultivation

Iturbe was a station on the now-abandoned railway line which ran along the Quebrada de Humahuaca into Bolivia. It is surrounded by hills with gentle slopes, inviting exploration. We stopped about 4km before reaching Iturbe and walked onto the hill to the north of the road (Fig.1). It was easy to walk around the





Fig.6. *Cumulopuntia rossiana* GC903A from Bolivia hillside and it was clear that there were a number of species to enjoy. We were able to identify the majority of what we found although the species name for the Tunilla, which had white spines and yellow flowers, is still uncertain, perhaps *T. tilcarensis*.

Easily recognized were *Lobivia marsoneri* and the widespread *Lobivia ferox*. Two other species commonly found in this area were present; *Oreocereus trollii* and *Parodia maassii*. The remaining species all belonged to the *Opuntia* group. Widespread at high altitude in northern Argentina and southern Bolivia is the plant I named *Maihueniopsis glomerata* ssp. *hypogaea*, now thought to be a good species whose oldest name is *M. molfinoi*, the type of the genus.

This place also turned out to be a habitat for the interesting *Tephrocactus nigrispinus* which was exhibiting its maroon-red flowers. Clumps of short cylindrical stems were identified as *Austrocylindropuntia shaferi*.

But then there were many examples of a low-growing *Opuntia* with flowers from yellow to copper to orange-red (Figs.2-4) to which I could not put a name. The plant reminded me of *Cumulopuntia rossiana* so I wrote in my field notes "Cumulopuntia sp. with variously-coloured flowers".

Other explorers have certainly found this plant and introduced it into cultivation and it is occasionally offered for sale, as it was last year at ELK in Belgium. The names applied to it are many and, in my opinion, all misapplied. It makes a neat cluster of stems in cultivation and flowers easily for me on the top shelf of the glasshouse (Fig.5). Its segments, however,



Fig.7. *Cumulopuntia iturbicola* BLMT320.06

become much more elongated in culture, in contrast to *C. rossiana* which retains its almost spherical segments (Fig.6). I grew this mystery plant for years. Every summer, the plants produced numerous flowers (Fig.5).

When a survey of South American *Opuntias* was commissioned by the IOS, I donated a number of plant samples from my collection of documented plants, all with exact locality data. Among them was a segment of the mystery plant and another collection of a similar plant donated by Martin Lowry, BLMT320.06 (Fig.7). Dr Ritz, then at the University of Giessen, and her assistants extracted the DNA from the samples and undertook the study.

The results placed the two samples side by side, confirming their synonymy and their claim to be a new species. With this result, I felt confident in describing the mystery plant as *Cumulopuntia iturbicola* in CSI 25:12 (2011), sixteen years after I first saw it.

Martin Lowry's collection BLMT320.06 is from Purmamarca, a town further south in the same valley but on the west side. He found the plant at 3010m. He also saw the same species further along the side road where we found it, near Iruya, BLMT332.06 at 3390m. Perhaps, now it has been described, we will receive reports of it from other localities in the Humahuaca Valley.

In the **Cactus Explorer** 4, I will tell you about the other new species *Maihueniopsis glochidiata* from the Sierra Famatina and how we found it.

GC

The genus *Lophophora* must be one of the most popular genera of cacti, and certainly among the most often to be written about. Yet still there are new observations to be reported, and diverse views about the number of species. In 2008, a new species *L. alberto-vojtechii* was described in *Cactus & Co.*

Photo: V. Myšák



Fig.1 *Lophophora alberto-vojtechii*, Nuevo León

It was during a trip to Mexico in 2007 that a group of Czech enthusiasts together with Grzegorz Matuszewski (President of the Polish Society) found themselves at one of the flat alluvial basins in the north of San Luis Potosi. There they had already found *Mammillaria coahuilense*, *Ariocarpus kotschoubeyanus* and *Coryphantha hintoniorum* when one of the party drew their attention to a small *Lophophora*. At first, they thought it was a young plant of *L. williamsii* but all the plants were small and a normal population of *L. williamsii* was found nearby on different terrain.

Having seen the plants in flower during a subsequent visit to the locality, a relationship with *L. koehresii* was thought likely. The

Photo: J. Bohata



Fig.3 *Lophophora alberto-vojtechii*, Zacatecas



Photo: V. Myšák

Fig.2 *Lophophora alberto-vojtechii*, Nuevo León discovery was described as *L. alberto-vojtechii* in *Cactus & Co* (2008).

The plants are remarkably small, starting to flower when only 10mm in diameter, and specimens over 25mm diameter are exceptional. They have 5 indistinct ribs, exceptionally 8, never growing more as can be seen in other species. Interestingly, as *Lophophora* plants grow, they can increase their rib count following the Fibonacci series: 5,8,13,21.

The new taxon was allocated to the section *Diffusae* of the genus *Lophophora*, being most closely related to *L. koehresii* which occurs in a similar type of habitat some 100km distant. In the original article you can read in detail about

Photo: V. Myšák



Fig.4 *Lophophora alberto-vojtechii*, Nuevo León

Photo: J. Bohata



Fig.5 *Lophophora alberto-vojtechii*, Zacatecas
how this taxon differs from its nearest relatives. It has now been found to occur over a wider area than first thought, including in Zacatecas, Coahuila and Nuevo León .

Before this new taxon was described, the same group of Czech enthusiasts wrote a very well-illustrated account of the genus which was published as *Kaktusy Special 2* in 2005. There was an English text version which is a very interesting read, as well as Italian and German editions.

The number of species of *Lophophora* is a subject of some debate. The *New Cactus Lexicon* accepted three (*L. williamsii* , *L. diffusa* and *L. fricii*). Snicer et al. recognise five and they published a key in their article in the *American Journal* (2009), four being placed in the section *Diffusae*. They explain the differences and illustrate the seed characters with REM images.

Part 3 of a series of articles by Martin Terry in the *American Journal* includes a dot map of distribution for the genus.

I am grateful to Jaroslav Bohata and Vojtěch Myšák for providing the pictures of this interesting discovery.

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Snicer, J., Bohata, J. & Myšák, V. (2009) The littlest lophophora. *CSJ(US)* 81(6):294-300.
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GC



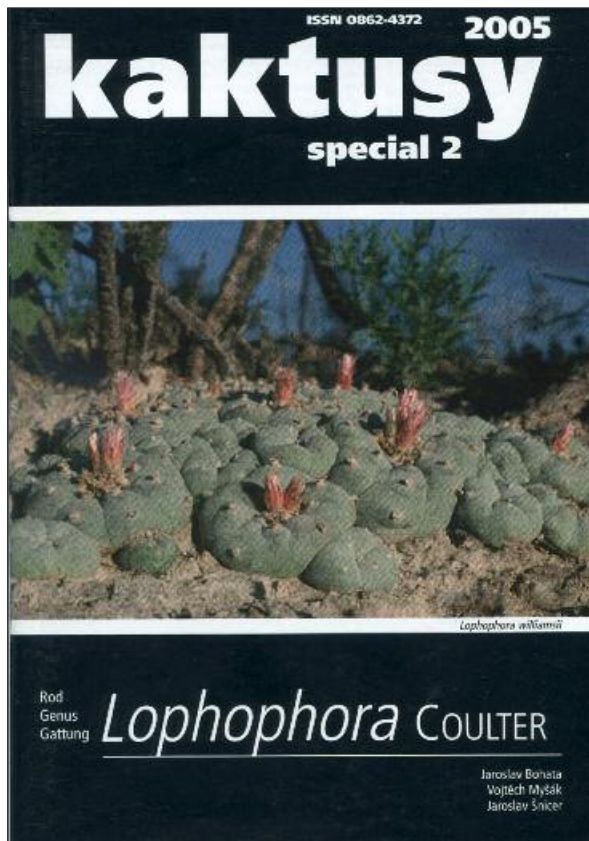
Fig.6 *Lophophora alberto-vojtechii*, Nuevo León

Photo: J. Bohata



Fig.7 *Lophophora alberto-vojtechii*, Nuevo León

Photo: V. Myšák



IN THE GLASSHOUSE

Regular readers of the **Cactus Explorer** will know that Graham Charles likes unusual and distinct plants. Here, he discusses the remarkable *Deamia testudo*, also seen in cultivation as a species of *Selenicereus* or *Strophocactus*.

Photo: G. Charles



Fig.1 The first flowering of *Deamia testudo* in the collection of Graham Charles

What a thrill it was when I saw the first-ever bud growing on my underpotted and rather scruffy specimen of *Deamia testudo*. It has been growing in a 14cm diameter hanging pot suspended from the edge of the staging, so it has been shaded most of the time.

It is a plant I only became aware of quite recently, so when I saw a large specimen at Rainbow Gardens in Vista, California, I asked for a cutting. Chuck Everson kindly gave me a piece, explaining that there was no habitat data with the plant but that it had the most attractive stems of any clone he has seen. It is indeed a good-looking plant and rooted and grew without difficulty, having no problem with my winter minimum of 10°C.

The flower opened for one night in summer, starting to open just as the sun set. I was struck by how similar the flower is to those of *Selenicereus* and similarly perfumed. In fact, this species has been included by some authors



Photo: G. Charles

Fig.2 The flower in Fig.1 seen from the side.

Photo: John Miller



Fig.3 In habitat at Palenque, Chiapas, Mexico in the genus *Selenicereus*.

It has a long and interesting history, dating back to its first description as *Cereus testudo* by Zuccarini in 1837, who attributed the name to Karwinski. The specific name 'testudo' refers to the appearance of the stems, which when adressed to the trunk of a tree, look like a line of green tortoises (Fig.4).

In fact, the stems actually distort and flatten against the tree trunk and provide a home for

Photo: John Miller



Fig.5 In habitat at Kinichna, Yucatán, Mexico

Photo: John Miller



Fig. 4 In habitat at Kinichna, Yucatán, Mexico

ants which help to protect the plant. This symbiotic relationship with ants is known as myrmecophily and can also be found in succulents of various families, but this is thought to be the only example in the Cactaceae. See Cota (1995) for personal observations of this phenomenon.

The following quote can be found at www.antweb.org and describes another example: "One of the interesting plant species at Santa Rosa is a climbing cactus, *Deamia testudo*. This cactus snakes along tree trunks and branches, and has swollen sections of stem which tightly clasp the tree surface, forming large chambers underneath. These chambers appear entirely suberized, but roots do extend from the "ceiling." The structure is reminiscent of ant-epiphytes such as *Dischidia* and *Myrmecodia*. I once found a large colony of *Camponotus zonatus* [an ant] nesting in *Deamia* chambers. I kept uncovering nests throughout the crown area, and it is likely they were all part of one extended polydomous colony".

Lemaire created the name *Cereus pterogonus* for this plant in 1839, presumably not realising that it already had a valid name. Lemaire's



Fig.6 *Cereus pterogonus*
Plate 5360 from Curtis's Botanical Magazine (1863)

name was used by most authors in the 19th Century, including Schumann. His name was also used in the captions of plate 5360 of Curtis's Botanical Magazine (1863) and Vaupel's plate 150 in *Blühende Kakteen* (1913).

In 1920, Britton and Rose, recognised Zuccarini's name as the oldest and erected the monotypic genus *Deamia* for this unique plant, naming it after an American botanical collector Charles C. Deam (1865-1953).

In 1965, Buxbaum (in Krainz) created *Deamia* as a subgenus of *Selenicereus* because of the form of its flower, and made the combination *Selenicereus testudo*. Perhaps predictably, this placement was accepted by 'lumpers' but not by everyone. The last taxonomic change was in 2003 when Ralf Bauer moved the plant to the genus *Strophocactus* and designated a neotype: Mexico, Veracruz, near Minatitlán 1958, King s.n. (HNT 2055).

Deamia testudo has an extensive habitat range along the coast of the gulf of Mexico including the Mexican states of Veracruz, Tabasco, Oaxaca, Yucatán, Chiapas, and Quintana Roo, together with Guatemala, Belize, Honduras, Nicaragua, Costa Rica and Colombia.



Fig.7 *Cereus pterogonus*
Plate 150 from *Blühende Kakteen* (1913)

I am grateful to John Miller for providing pictures of *Deamia* in habitat which he saw while visiting archeological sites in Mexico.

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GC



Weingartia neumanniana MN57



Weingartia neumanniana GC173.09

Weingartia neumanniana

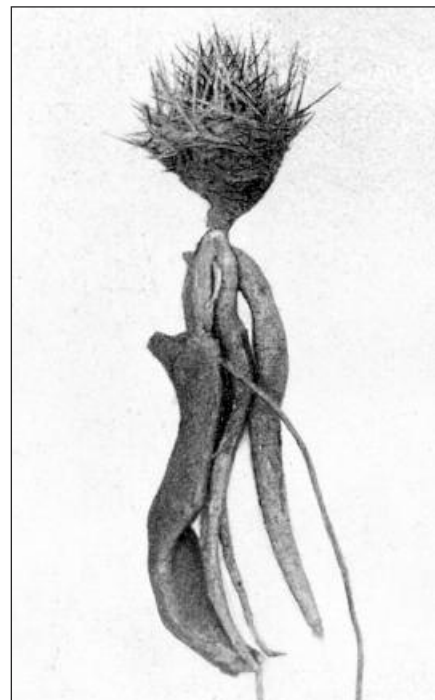
Here is a small species which grows slowly but easily and doesn't mind a cold winter. It is the most southern species of the genus *Weingartia*, the only one to grow in Argentina, the bulk of the genus being from Bolivia.

The first attempt to describe this species was by Backeberg in the obscure journal 'Der Kakteen-Freund' in 1933. He called it *Echinocactus Neumannianus*, an illegitimate name because it had already been used by Cels ex Labouret for a Chilean cactus.

The first valid description was made by Werdermann in *Kakteenkunde* (1937) at the same time as he created the genus *Weingartia*. This genus has subsequently been included in *Gymnocalycium* and *Rebutia* but neither of these placements is supported by DNA studies so I still call it *Weingartia neumanniana*.

On the 8th December 1995, I awoke to a beautiful morning in Humahuaca, Salta, Argentina. The town is at 2950m but I was fortunate that I had no ill effects from the high altitude. Our objective for the day was to find *Weingartia neumanniana* near its type locality and most-southerly habitat high above the town.

We drove as near to the hill as we could get and parked the car near a wide almost-dry river bed. The walk was quite strenuous and took a few hours, although we stopped to enjoy the plants on the way up. We had seen eight cactus species on the way up but not the *Weingartia*.



Backeberg's picture from *Der Kakteen-Freund* 1933

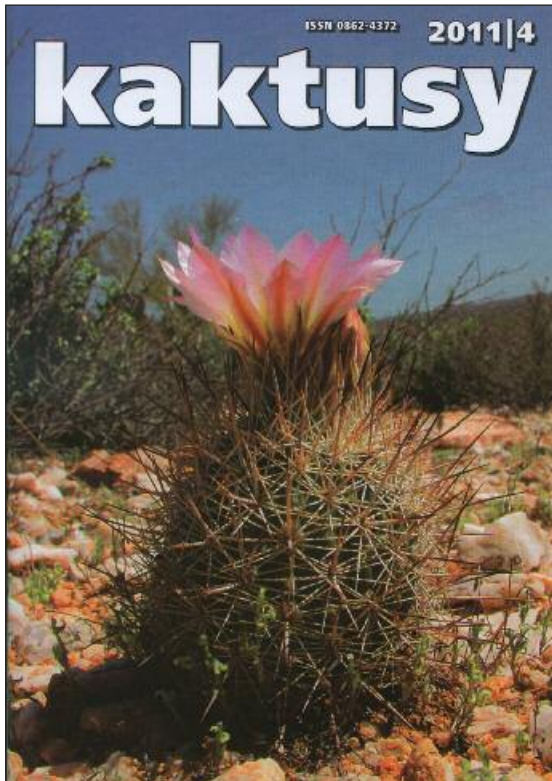
The top of the hill at 3340m was reasonably flat and, in part, comprised outcrops of rock with vertical strata. I was a novice at habitat exploration then but now I know that this sort of rock is a favoured place for some cacti, and so it proved for *Weingartia neumanniana*. The small solitary heads were crammed in the rock gaps. It is certainly more rewarding to find a plant when you have had to make a long walk!

GC

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JOURNAL ROUNDUP



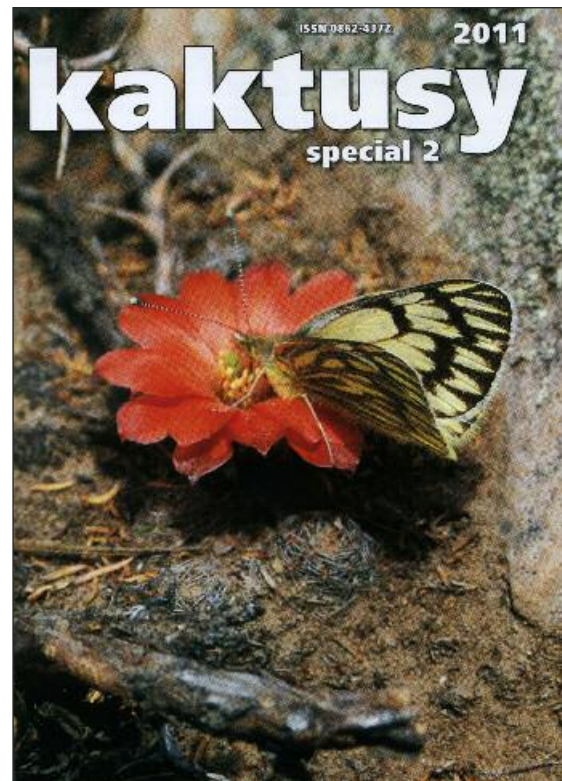
Kaktusy

This long established journal started in 1966 and soon published important descriptions of new plants. For the first three years the page size was approximately A5, then in 1968 the size was increased to about what it is today, 155 x 228mm.

The Czech people have long been known to be skilled cultivators of cacti and many have also visited habitats to see their favourite plants in the wild. This rich source of material has made Kaktusy an important journal and it still publishes much new information. It is splendidly illustrated with fine colour pictures of plants both in cultivation and habitat.

It is a pity that the Czech language is beyond most of us, but there are summaries in English and German. The **Cactus Explorer** also hopes to republish some material.

Subscription is good value at about 20€ per year. I find it convenient to renew through Petr Koupelka who also sells interesting books. His website is: <http://www.cactus.cz/english/>



Kaktusy Special Issues

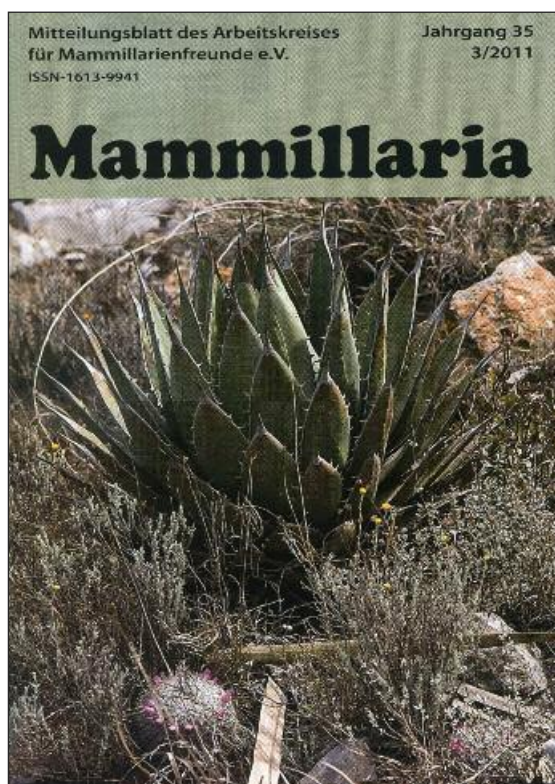
Perhaps more familiar to those of us who do not understand the Czech language are the special issues of Kaktusy. Subscribers to Kaktusy automatically receive the Czech versions, usually 2 or 3 per year.

Some of the special editions are translated and published in German or English.

In the following list are all the issues I know of which are available in English:

- 2002 2 Genus Ariocarpus
- 2003 1 Brazil and its Columnar Cacti
- 2004 2 Freeze hardy Opuntia from the USA
- 2005 2 Lophophora
- 2007 1 The Czech and Slovak Houseleeks
- 2007 3 The genus Pediocactus
- 2008 2 Thelocactus rinconensis and relatives
- 2009 2 Sclerocactus plants in cultivation
- 2010 2 The Agave utahensis complex

Many of these are available from [Keith Plant Books](#) although some are now out of print.



Arbeitskreis für Mammillarienfreunde

Mammillaria is generally considered to be the most popular genus of cacti, with many dedicated specialists. It is clear that many of these enthusiasts live in Germany or Austria and contribute excellent material to this German language journal.

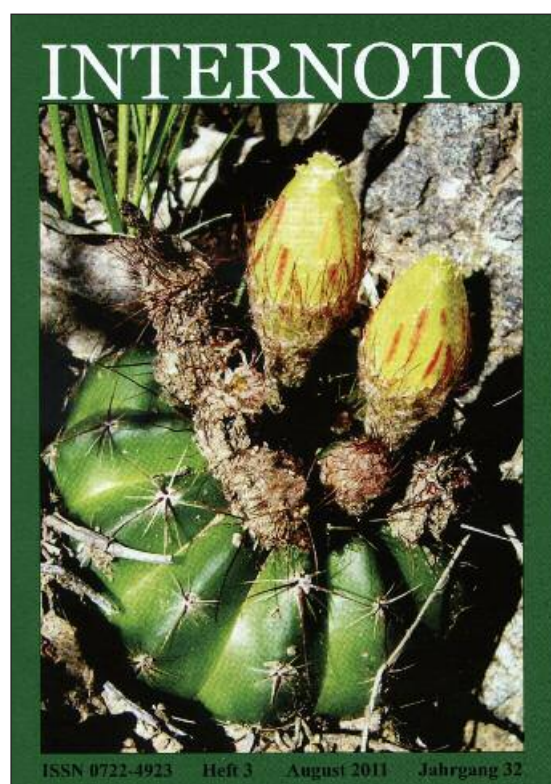
It was started in 1977 and soon became a well-produced journal with six issues a year and stick-in colour pictures. Colour pictures were later incorporated and the journal moved to 4 issues a year with Vol. 18 in 1994.

Today, the publication is very professionally produced and includes English translations of many of the articles, including interesting accounts of the plants in habitat.

The Society has also produced a number of separate booklets including descriptive field number lists of Alfred Lau (Part 1: Mexico and Part 2: South America). Also in this series are field lists of Steven Brack, W. Reppenhagen, and Eberhard Lutz.

There is a very good seed list for members every year. You can find out about the Society and how to join (35€) at their website:

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



Internoto

Journal of the study group for Notocactus in the strict sense. It started in 1980 with two issues and then became quarterly. After the early issues had stick-in colour pictures, they became integral after 1985.

In Britain, Notocactus are currently out of fashion, but they have retained a loyal following in Germany, Holland and other continental countries. They were particularly popular back in the 1970s when new discoveries of really different plants were frequent.

Recent issues of Internoto are well-produced with lots of colour pictures and accounts of habitat investigations. The text is German with summaries in English.

Every year there is an extensive seed list for members and plants are sometimes offered.

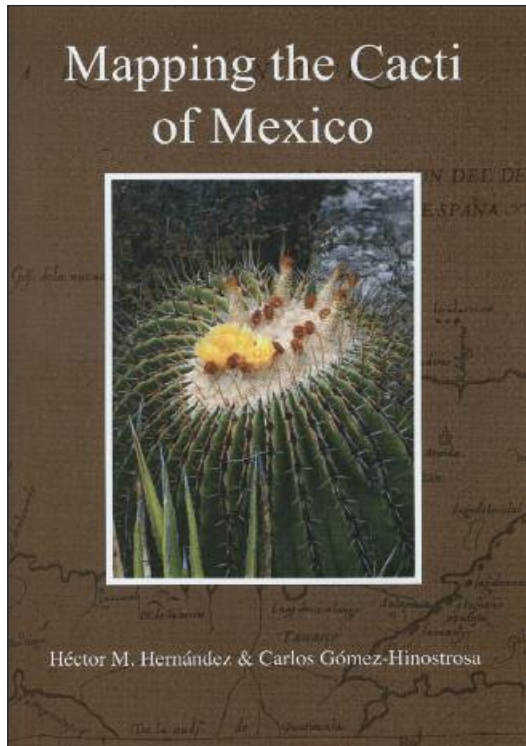
You can find out about joining the Society (36€) and information about the plants at:

<http://www.internoto.de/index.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.

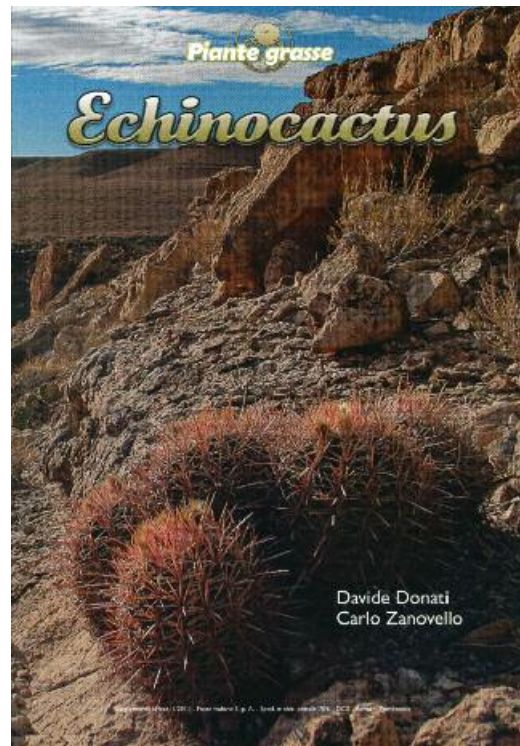


Mapping the Cacti of Mexico

Recently, there have been a number of high-quality maps of cactus distributions published in books, such as those in the *Thelocactus* book I reviewed in the last issue. Here we have a volume which plots the Mexican (and nearby) locations of herbarium collections on a series of 51 maps covering 33 genera and 114 species of cacti. This is not all the cactus genera found in Mexico. It excludes the large genera *Coryphantha*, *Echinocereus*, *Ferocactus*, *Opuntia*, *Mammillaria*, as well as some epiphytic and columnar genera.

The book is Volume 7 of the Succulent Plant Research series published by David Hunt. It follows a similar format, 128 pages, each 245 x 170mm, softbound. There are 34 colour pictures of plants, including a number of rarely-illustrated species, and for each genus, there are interesting notes about its distribution and habitats.

Published in 2011. Available from [Keith's Cactus Books](#) priced at £18 plus carriage.

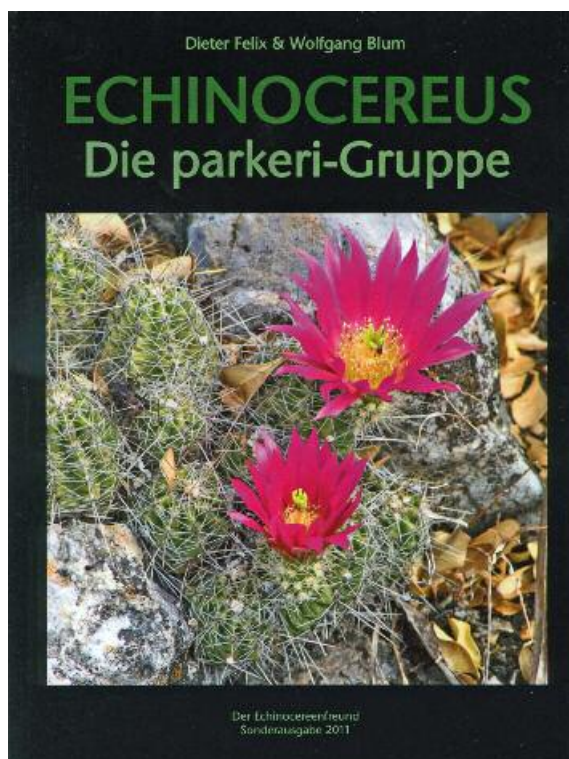


Echinocactus

Following on quickly from their *Epithelantha* book, this one looks at plants towards the upper end of the size scale! It starts with the history of the genus, geographical distribution, ethnobotany and uses (anyone for *Echinocactus* "Marmalade"?) before going on to the species including "*Homalocephala*".

There are descriptions, distributions with maps, ecology and cultivation, and each is preceded with a narrative of the author's experiences when seeing the plants in habitat. Final sections look at general cultivation considerations, pests, propagation and bibliography. Well illustrated with 79 colour photos mainly in habitat, many large format. Translated from the Italian edition. 2011 240 x 165mm 86 pages. Wrap-around picture softcover.

Available from [Keith's Cactus Books](#) priced at £17.50 plus carriage



Echinocereus Die parkeri-Gruppe

This is the latest in a series of detailed books about groups of the genus *Echinocereus* published by the German Specialist Society 'Die Echinocereenfreund'.

144 pages, 172 x 235mm, 198 high quality images of plants plus many images of herbarium sheets, seed SEMs and a dot distribution map. [German language]

The book presents a well-illustrated study of *E. parkeri* comprising 5 subspecies, one of them newly combined, and the related *E. nivosus*.

The following books in the series are still available:

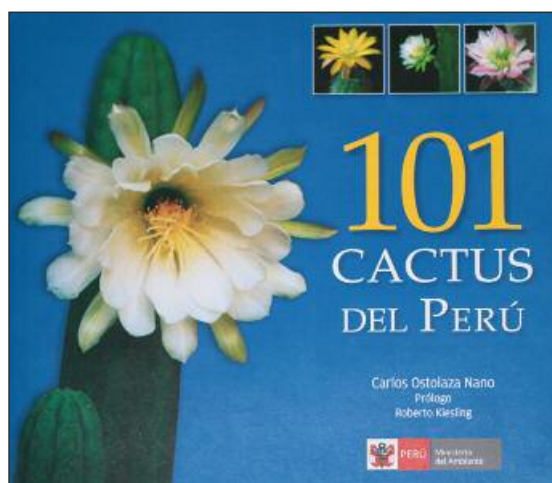
Die Echinocereen der Baja California (2001) [German/English]

Der Echinocereus reichenbachii-fitchii Komplex (2005) [German/English translation available separately]

Chihuahua. Looking for cacti...(2007) [German/English]

Echinocereus Die Sektion Wilcoxia (2008) [German]

You can find more information about buying all these books at the [website](#) of Die Echinocereenfreund.



Just arrived! A new book by Dr. Carlos Ostolaza, well-known as the leading Peruvian cactologist. More information in the next issue.

GC

Book News

[Chuck Everson](#), the famous book seller from California provides us with information about titles to look out for:

Succulent Plants of the World - by Fred Dortort. A wonderful new book mainly about succulents of South Africa. 750 color photos. 344 pages. Hardbound.

Hoya - by S. Somadee & J. Kuhne. In German. Just published. The colour photos are outstanding. 584 colour photos. 96 pages. Softbound

The Aloe Names Book - by Gideon Smith et al. Brand new book. Another useful Aloe book: 313 colour photos. 212 pages. Hardbound.

Rhipsalis. An Introduction - C.Rezai. A very good introduction to the maintenance, care, and cultivation of Rhipsalis. 44 colour photos, 1 b/w map, 37 b/w line drawings. 27 pages. Spiralbound.

Cacti and Succulents for cold climates - Leo Chance. It's going to be 368 pages, with 306 colour photos. To be published by Timber Press about July 2012

More books expected soon:

Baja California Plant Field Guide. A Revision- Jon Rebman, et al,

Agaves - Greg Starr,

A Revision of Hesperaloe, Nolina, Dasylirion - Fritz Hochstatter

Cactus - Scott Calhoun. Timber Press. late Jan. 2012.

The genus Bursera - Jason Eslamiah. Mid 2012.

Mesembs : The Titanopsis group - S.Hammer. To be published by Little Sphaeroid Press. Expected Mid-Summer 2012

GASTERIA RAWLINSONII

IN THE BAVIAANSKLOOF

Many of those who grow *Gasterias* must surely agree that *Gasteria rawlinsonii* in its various forms is the choicest! Tony Roberts describes a memorable morning in the Baviaanskloof, South Africa, visiting the magical habitat of this very special plant.

Photos: Tony Roberts



Fig. 1 The entrance to Gert Smitskloof in the middle distance

During my 20 years of growing *Gasterias*, I have longed to visit their habitats and see how they cope with the South African climate compared with the conditions “under the bench” in my greenhouse! Early retirement and the willingness of my travelling companions (Derek Tribble and Al Laius) presented me with just this opportunity in November 2011.

My favourite has always been *Gasteria rawlinsonii*, proposed recently following DNA studies [1] to be the most primitive of all the species. This plant is endemic to the Baviaanskloof region of South Africa and occurs in several forms in nature, with the

alternate leaves either remaining distichous or spiralling slowly. *Gasteria rawlinsonii* ‘Gert Smitskloof’ [2] is the distichous form and this was to be the target of our exploration.

The Baviaanskloof itself is a long valley with steep sides (kloof = cleft or ravine) which runs approximately west to east 40 kilometres north of the southern coast of the Eastern Cape. Running perpendicular to the main valley are many smaller ravines with very steep, almost vertical, sides. Gert Smitskloof is one of these ravines located on the land of Kleinpoort Farm a few miles east of the village of Studtis (Figs. 1 & 3). The name boards for the farm signify the potential presence of both leopards and



Fig 2 The first glimpse of *Gasteria rawlinsonii*

Anatolian dogs (Fig. 4) – fortunately, we saw neither!

Once through the gate we soon reached Gert Smitskloof proper and passed a cave (or rather,

a dramatic overhang) on the right which has been turned into an open-air camping spot called “Bakkrans” complete with sleeping mattresses, running water and an open fire. Farther on we began to see our first plants, high up on the sheer cliffs in the distance, and yes, they were indeed *Gasteria rawlinsonii*! (Fig. 2)

As we progressed farther up the kloof (the river bed was dry and progress along the pebbles was quite easy) more and more clumps of old plants came into view on both sides (Fig. 8). How old were some of these plants? Even in cultivation they might only grow one or two new leaves each year. But



Fig. 3 An aerial view of Gert Smitskloof in the Baviaanskloof (courtesy of Google earth)



Fig. 4 The gateway “Beware of working Anatolian Dogs”

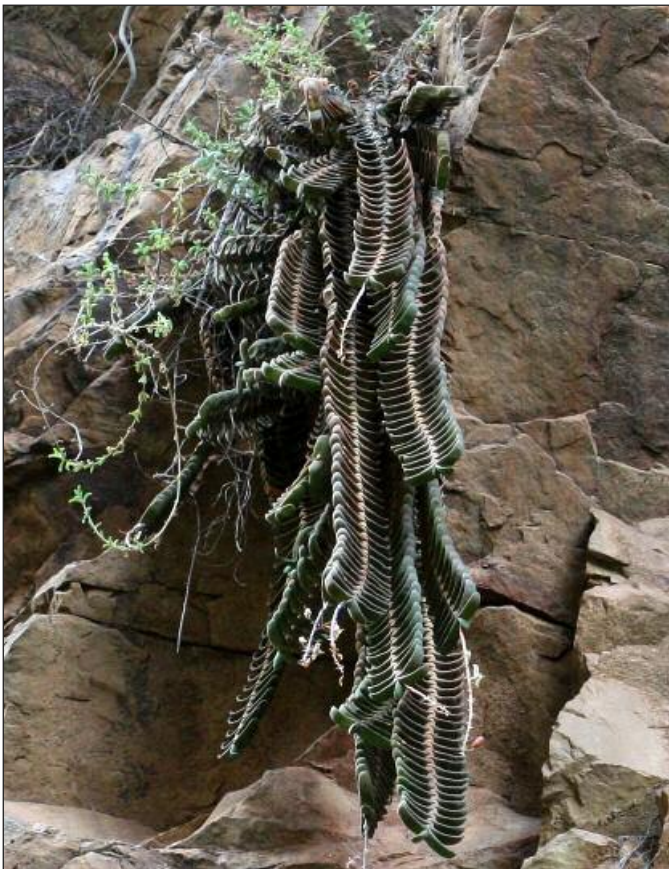


Fig. 5 A fine looking specimen of *G. rawlinsonii*

some of these plants in habitat had more than 200 leaves on each stem (Yes, I counted them!) never mind multiple stems at least 2 metres long originating from the base of the plant. I say base, but perhaps I mean top, since of course these plants are pendulous and are hanging down the cliffs.

It wasn't an easy task but we did manage to get close enough to some of the plants without having to climb too much (Figs. 5, 6 & 9). Notice the difference in succulence of the leaves dependent upon just where the plants were growing on the cliffs, in full shade or bright sun. We found one very large plant that had fallen down to the ground and its root ball, which had clearly been constrained in a cleft in the rocks, was only 15cm in length.

There were other succulents in Gert Smitskloof too: *Adromischus sphenophyllus* (just for Derek!), *Sansevieria aethiopica* (just for Al!), huge trees of *Euphorbia triangularis*, and more besides, including rather nice clumps of *Haworthia viscosa*, also hanging down from the cliffs like the *Gasterias* (Fig. 7).

Whilst lying on the ground using a mini-tripod to take photographs of plants high up



Fig. 6 *G. rawlinsonii* growing in full sun



Fig. 7 *Haworthia viscosa*, almost mimicking the *Gasterias*

on the cliffs, Al spotted me and thought I had had an accident or had been overcome with excitement. The latter was closer to the truth, for this was indeed a magical place!

So what of next time? Why, it will have to be a visit to Geelhoutboskloof, 35 kilometres further east, where the spirally-arranged form of *Gasteria rawlinsonii* grows.

TGR

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Fig. 8 Old clumps of *G. rawlinsonii* high up on the cliffs



Fig. 9 *Gasteria rawlinsonii* on the shady side of the kloof

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MAMMILLARIA LUETHYI

IN SEARCH OF A BOTANICAL JEWEL FROM MEXICO

Paul Hoxey describes his hunt for a very remarkable plant and the thrill of eventually finding it.

Photographs by the author.



Fig.1 *Mammillaria luethyi* - a plant from the type collection, Mexico 1996

Mammillaria luethyi has fascinated cactus enthusiasts ever since its description in 1996. The discovery and subsequent secrecy surrounding its habitat has earned it a near-mythical status for cactus explorers in Mexico. However, the story of this species does not begin in 1996 but more than 40 years earlier when a mystery plant was first mentioned by Ladislaus Cutak in his column 'Spine Chats' in the Cactus and Succulent Society of America Journal (1952).

A few years later, photographs of the plant were published in an article by Backeberg (Backeberg 1959) and it is without question *Mammillaria luethyi*. Rather than recount all the details here, I suggest readers take a look at the article 'The discovery of *Mammillaria luethyi*' by Jonas Lüthy and George Hinton published in the BCSS journal in 1998. The article summarises the *Mammillaria luethyi* story from the time of the first encounter in a hotel in northern Mexico in 1952, through to its discovery in the field in May 1996.

My first acquaintance with *Mammillaria luethyi* came in November 1996 during my first



Fig.2 *Mammillaria luethyi* - a cultivated specimen in bloom

field trip to Mexico. I was a guest of Charlie Glass, then curator of the Cante Botanical Gardens in San Miguel de Allende. One day, Charlie showed me a small plant (Fig.1) potted up in a fizzy drink can and asked what I thought of it. Of course, I could not name the plant and Charlie then explained it was the mystery plant Ladislaus Cutak had discussed so many years before in the CSSA journal and it had been re-discovered by Jonas Lüthy and George Hinton earlier that year. He handed me a magnifying eye piece and pointed out the long slender tubercles and spine arrangement – small areoles with a pad of tiny, yet densely set, spines – unique within the Cactaceae. It was clearly a new species of *Mammillaria* unlike any other.

Just a few weeks earlier, the plant had been described as *Mammillaria luethyi* in honour of Jonas Lüthy by George Hinton in the botanical journal *Phytologia* and was as yet unreported in the cactus literature. It was a low key entrance without fanfare but finally, after 45 years, the mystery plant from Mexico finally had a name!



Fig.3 The creosote bush (*Larrea* sp.) with limestone hills in the distance

Within a few years, the small number of plants from the type collection were propagated extensively in Mexico, aided by their tendency to grow quickly and offset profusely when grafted. Very quickly, small grafted plants became available throughout the world and found their way into enthusiasts' collections. Flowers are easily produced in early spring and sometimes a small grafted cluster can be completely obscured by the mass of blooms (Fig.2).

Naturally, cactus aficionados wanted to find this plant in habitat and in the late 1990's many expeditions were mounted to try and discover the plant. Jonas and George both agreed to keep secret the single location known to them and the type location was reported simply as northern Coahuila. Northern Coahuila is a very large area to explore and at one point I heard that 50 people were involved in the search. All failed in their quest and 10 years after the discovery, Jonas (Lüthy 2007) described a return visit to the habitat in April 2006 and found that the type location was untouched. Jonas also reported the discovery

of a second, and much larger, population with many thousands of specimens. A very encouraging indication that the plant may be more widespread than first feared.

Approximately two years ago, some information on the approximate location of the habitat of *Mammillaria luethyi* became known to me and in July 2009, during a visit to Mexico with Peter Berresford, we searched for the plant. Perhaps not surprisingly, with only a limited amount of time available and unsure of the quality of our information, we were unsuccessful in our search. However, we were left with an incident to remember. As we arrived at the supposed habitat, we encountered a large bear at close quarters. It reared up on its hind legs in a threatening posture before running off. Fortunately, we were still in the car at the time so we were never in any danger, but the experience left us slightly wary of hiking into the surrounding hills to search for cacti.

In summer 2010, at the BCSS International Convention, Zlatko Janeba presented a talk on



Fig.4 The habitat of *Mammillaria luethyi* - the plants grow in the gently sloping barren area in the foreground.

a recent trip to Mexico and treated the audience to photographs of *Mammillaria luethyi* in habitat. I believe his Czech group were the first to find this plant in habitat since Lüthy and Hinton, and many days of searching had finally paid off. Clues in the talk clearly showed I had been in the right area the year before and I was itching to return to Mexico to try again in my quest to find the plant.

With great fortune, the opportunity presented itself just a few short weeks later when I visited Austin, Texas on business. I quickly made plans to arrange a visit to Mexico and booked one week of holiday to follow my time in Austin. On the Friday evening I flew from the US down to Monterrey in northern Mexico for a week of cactus hunting.

Since my visit in 2009, I used further clues to the habitat of *Mammillaria luethyi* and, with the help of Google Earth, I pin-pointed an area to search. In writing this article I have thought carefully about how much to say about the location of *Mammillaria luethyi*. Undoubtedly,

the location will become well-known to cactus enthusiasts and indeed I already hear others have found the plant recently, so I will be a little more precise and say it grows near to the Sierra del Carmen, quite close to the United States border in northern Coahuila.

I spent the night in a hotel in Melchor Mezquiz and departed before dawn the next day, taking the road north west, in the direction of the Sierra del Carmen and the border village of Boquillas. The road follows a wide valley with large imposing limestone mountains in the distance. This area of Mexico is dominated by cattle ranching and is extremely sparsely populated. On route, I stopped briefly to search for the recently-described *Escobaria grata* but without success. However, my mind was on the real target for the day so I didn't dwell for long.

From my Google Earth research I could make out tracks heading towards low limestone hills in the target search area. My goal was to use them for access from the road in the car, but unfortunately my way was blocked by a



Fig.5 The small white heads of *Mammillaria luethyi* PH914.06 nestle between limestone chippings.

locked gate. The majority of the land in the area is fenced to keep cattle in so perhaps I shouldn't have been surprised. I had come so far I wasn't about to turn back now so I hopped over the fence and started walking towards a low hill approximately 2km distant.

The way was flat and the vegetation dominated by the creosote bush (*Larrea* sp.). The vegetation changed markedly on the limestone hill with the *Larrea* bushes giving way to signature Chihuahuan Desert succulents: *Yucca*, *Agave*, *Dasyliirion* species and *Fouquieria splendens*. The cacti were also much more plentiful with the widespread species expected in the region: *Echinocereus dasyacanthus*, *Escobaria tuberculosa*, *Neolloydia conoidea*, *Epithelantha micromeris*, *Echinocereus longisetus*, *Coryphantha echinus*, *Ferocactus hamatacanthus*, *Echinocactus horizonthalonius* and *Opuntia engelmannii*. A selection of these taxa are illustrated in Figs 10 to 13. A careful search of this hill revealed no sign of *Mammillaria luethyi*. The next limestone hill was approximately another 2km distant so, with little option if I wanted to find anything

further, I continued on.

This hill was very similar to the previous one and I started to lose hope of ever finding *Mammillaria luethyi*. I knew from published information that *Mammillaria luethyi* grew in a very specific habitat and I needed to find exposed slabs of limestone bedrock with shallow pans and a grit and clay substrate. I wandered around the hills with this image in my mind when, from a distance, a small area no bigger than a tennis court caught my eye on account of its barren appearance and areas of exposed bedrock. As I approached, it looked less promising with none of the signature cacti in evidence but once there, literally on top of it looking down, I was rewarded by tiny white dots (Fig.5) in the limestone chippings below my feet; *Mammillaria luethyi* in their hundreds!

I quickly forgot about the walk, the hot sun and even the possibility of encountering a hungry bear. This was a time to savour. I carefully wandered around the site, keeping to the areas of exposed bed rock to avoid disturbing the plants growing in the grit pans.



Fig.6 *Mammillaria luethyi* PH914.06 - possibly several plants or a small cluster.



Fig.9 *Mammillaria luethyi* PH914.06 - each areole is densely packed with minute spines.

The white heads, formed by clusters of areoles, nestled between small pieces of grit. Each areole is densely packed with minute spines, about 80 on an areole less than 2mm in diameter (Fig.9). Each spine is about 0.5mm long and is crowned by a number of microscopic radiating sub-spines. Together, the spines and areole form a small white reflective cap on the top of the tubercle. Excellent highly magnified SEM photographs of the spines and their unique structure have been published by Fitz Maurice (1998).



Fig.7 *Mammillaria luethyi* PH914.06 - a double headed specimen.

An areole full of spines reflects the sun's rays very efficiently and perhaps the unique structure of the spines is an adaptation to shield the plant body from the hot sun to keep it cool and reduce the rate of water loss. Each areole is situated at the end of a very long yet thin tubercle, 5.5mm x 1.3mm, reddish-green in colour. The tubercles were not visible in the habitat plants but in cultivation, when given enough water, plants become more open and they can be observed. I assume habitat plants exhibit similar behaviour after rain and the long tubercles give the plant a natural mechanism for exposing photosynthetic tissue for growth when moisture is present. Conversely, they shrink back during times of drought and pull the areoles together to form a highly-reflective shield against the sun.



Fig.8 *Mammillaria luethyi* PH914.06 with a 1 peso coin 21mm in diameter for scale.

Many cacti in Mexico have a small body size but *Mammillaria luethyi* is probably the smallest of all. No single head exceeded 10mm in

diameter and many were little more than half that size. I did not disturb any plants so I cannot say if several heads emerged from a single root stock, but I got the impression that they were single heads or at most small clusters of 3 or 4 heads per root stock.

Few other plants grew in direct association with the *Mammillaria*. There were a few scattered *Epithelantha micromeris* and *Neolloydia conoidea* but in numbers far less frequent than *Mammillaria luethyi*. Even the moss-like Selaginella, which was plentiful on other parts of the hill, was scarce. The small micro-habitat, in very shallow substrate, is exposed to the intense Mexican sun and must dry out very quickly after rain. *Mammillaria luethyi* is clearly a plant with an adaptation to this specific ecological niche. The small body size and reflective shield against the sun must allow it to grow successfully in this challenging environment, where it does not face competition from other more vigorously growing species.

The fruit of *Mammillaria luethyi* is small and sunken into the stem. After drying, the seeds are retained in a cavity within the body of the mother parent. For a plant with a specialised habitat, the wide distribution of the seeds is not a priority because it is unlikely any will reach another suitable place to establish themselves. Instead, having a seed bank permanently available in situ is a strong survival strategy in case extreme climatic conditions, such as several years with minimal rainfall, decimate the adult plant population.

Within the small habitat the plants were extremely common with several hundred, and perhaps a thousand plants in total. Outside of the habitat, where other vegetation was more plentiful, the *Mammillaria* abruptly stopped occurring. I searched the surrounding slopes and failed to find any more plants but nowhere provided quite the same exacting habitat requirements. There are perhaps four populations now known; the type location; the second large population reported by Jonas; the Czech population and now this one. There will undoubtedly be others in the area and perhaps the species is a lot more widespread



Fig.10 *Echinocereus dasyacanthus* PH914.01



Fig.11 *Echinocactus horizonthalonius* PH914.11

than thought, although its precise habitat requirements will restrict it to small micro-populations within its range. Some extensive searching is going to be required to determine the full range of the species.

The habitat of *Mammillaria luethyi* is remote and not in any danger from development or agriculture so the future of the species should be secure. It is one of the few places I have been in Mexico which appears to me to be completely untouched by man and, while I was exploring that day, I saw nobody from the time I left the car to the time I returned some hours later.

Clearly *Mammillaria luethyi* is a distinctive species and unlikely to be mistaken for anything else. But what are its closest relatives? Both Lüthy and Hunt, two students



Fig.12 *Epithelantha micromeris* PH914.04

of the genus *Mammillaria*, ally *Mammillaria luethyi* with species such as *M. albiflora*, *M. herrerae*, *M. humboldtii* and *M. sanchez-mejoradae*.

The molecular study by Butterworth and Wallace (2004) places *Mammillaria luethyi* in a rather basal position in a well defined clade consisting of series *Ancistracanthae* and the oddball genera *Neolloydia* and *Ortegocactus*. The study places it closest to *Neolloydia conoidea*. *Mammillaria herrerae* and *Mammillaria humboldtii* are in a different position altogether in the phylogeny so are unlikely to be closely related to *Mammillaria luethyi*. A second study by Crozier (2005) in a PhD dissertation did not include *Mammillaria luethyi* but included *Neolloydia conoidea* and *Mammillaria theresae* and interestingly, they appear as closely-related sister species, mirroring the *Neolloydia conoidea*/*Mammillaria luethyi* relationship in the Butterworth study.

The proximity of *Mammillaria luethyi* and *Mammillaria theresae* to *Neolloydia conoidea* does not seem likely based on physical characters and a repeat molecular study would be useful to confirm this result. However, the close relationship between *Mammillaria luethyi* and *Mammillaria theresae* inferred by their closeness to *Neolloydia* does look plausible. Both species have extremely dwarf bodies, large showy flowers and inhabit a similar ecological niche within shallow pans in exposed bedrock.



Fig.13 *Coryphantha echinus* PH914.07

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[Paul Hoxey](#)

MY SEARCH FOR OBREGONIA DENEGRII

Amante Darmanin describes his search for *Obregonia* and gives us an indication of how difficult it can be to find a particular species in habitat. Photographs by the author.



The habitat of *Obregonia denegrii* at San Vicente. Notice *Echinocactus platyacanthus* in the foreground.

Readers of cactus habitat adventures may have the impression that finding choice cacti is easy and always successful. This is not so, at least not in my case. I have often had to travel to Mexico (my favourite hunting ground) several times before I found what I was looking for. In truth, I have never asked or hired local experts to take me to a cactus habitat. Although searching for a desired species is a lot of hard work, in the end the feeling is almost that of rediscovery and most satisfactory.

Thus, to this day, I have completed five journeys, the last one being in January-February 2011, with a total of more than six months and I cannot say I have seen all the plants. In fact, there is always a long list

waiting for the next visit. Then again, I usually go alone or with a friend and the laws of probability would dictate that the more there are of you, the greater the chance of finding what you are looking for.

The precise locality for a particular cactus species is often guarded with secrecy, known only to a handful of people which may or may not have the cactus welfare in their mind. It is usually more because of the mentality: I have found it and now you do not have the right to find it. I don't agree with this, but believe that a cactus habitat should be known to one and all, and I always give precise data, when this is possible, to whomever so desires. After all, travelling to habitat places is often expensive and the joy of seeing the plants growing in



Ariocarpus trigonus fa. *elongatus*



Ferocactus echidne The ruler is 15cm long

their natural habitat is an experience which anyone who has not yet travelled to these magical places may not understand.

Opponents of cactus habitat revelation are of the opinion that if a cactus locality is revealed, it always ends with plants being stolen. But who is to say who will take them? As far as I know some cactus species are only known by a very narrow circle of friends and yet these same habitats are decimated just the same, perhaps by people in the same circle.

Over the years, I have built a database of the likely places one can find a particular species. This is gleaned from books, field numbers and, less often, from seed lists. Sometimes one has to read between the lines and do a little detective work. Ralph Martin's site on field numbers is a gold mine. At first, I used to print reams of paper and take loads of maps with me. I still do take maps, but now I can upload my database onto my mobile telephone or laptop, so having less weight to carry. Although, this may be fraught with danger of having my phone hacked, which is what happened on my last journey. But that is a different story.

My third visit to Mexico was in May-June 2003 and one of the species at the top of my list was *Obregonia denegrii*. From my notes, I knew that it grew in the Jaumave valley, in the state of Tamaulipas; perhaps at San Antonio and San Vicente. I arrived at San Antonio on the 29th May. I searched the nearby hills and found *Mammillaria heyderi*, *Echinocereus*



Mammillaria baumii at San Vicente



Coryphantha delicata in flower at San Vicente
Plants tend to offset more here than elsewhere



Several *Obregonia denegrii* from young plants to adults. San Vicente, Tamaulipas
Notice the brownish stone in the lower right corner of the picture (see text)

pentalophus, *Echinocactus platyacanthus*, *Coryphantha delicata*, *Stenocereus pruinosus*, *Ferocactus echidne*, *Ferocactus hamatacanthus* ssp. *sinuatus*, *Opuntia microdasys*, *O. leptocaulis*, and *Ariocarpus trigonus* fa. *elongatus*, but no *Obregonia*.

The next day I booked a hotel in Jaumave and searched the valley. Apart from *Mammilloidya candida*, I found the same species as the day before. Next, I planned to travel to San Vicente but unfortunately, unknown to me, there are two San Vicente in this locality. One of them is near Palmillas, the one I had on the map. As it always happens, it was the wrong San Vicente. But I did not know it at the time.

I went to Palmillas by bus (I had only booked a car for one week). I was told that a minibus passes at around 11am, so I started walking the long kilometers towards San Vicente hoping to see a few cacti along the way. At 11am or so, I caught the minibus to the village. This San

Vicente is deep in the mountains and I could not find any cacti, let alone *Obregonia*.

Cactus research does not finish after you complete a journey; I spend the following few months trying to label the hundreds of pictures I brought back, in the leisure of my home. I happened to look over more maps. That was when I learned about the other San Vicente,



O. denegrii being pollinated by bees.
San Vicente, Tamaulipas



A large plant of *Obregonia denegrii* at San Jose de Salamanca, Tamaulipas



Obregonia denegrii growing with *Ariocarpus trigonus* at San Jose de Salamanca, Tamaulipas.

which is nearer to Jaumave.

My next attempt came in September-October 2006. By this time, Google Earth was up and running and GPS was all too common and so was digital photography, but Mexico was a little more dangerous. On the 26th September I arrived at San Vicente. Of course, the true one. I searched the side of the valley towards the river, finding the usual cacti mentioned above, then walked back along the road towards Jaumave. On the sides of the road I managed to find *Mammillaria baumii* and countless *Coryphantha delicata* in flower.

After several hours, I turned back towards San Vicente. At one point, I met a man on horseback who asked me what I was looking for. I bent down to attempt to draw an *Obregonia* on the ground. He asked me whether I was looking for *Obregonia*. I was quite surprised, as the local people do not usually know them scientifically but this one was certainly more knowledgeable. I confirmed his assumption and he pointed towards the mountains. I asked him if I had to climb the mountains to find it. He said that they are to be found on level ground between the mountains and the dirt road, but very difficult to find. I walked in the direction he told me, searching the ground and underbrush, but again it proved elusive.

Due to tiredness and disappointment I started fooling around by throwing a rock over my shoulder, then turning round to look where it landed and seeking what cacti I could

find there. By now I had reached the base of the mountain where a deep valley impeded me from walking further. At the edge of this valley I found *Ariocarpus trigonus*. fa. *elongatus* again, some of them chewed by animals, several *Agave* species and *M. baumii*. I turned back.

When I had nearly reached the trail again and near a small adobe building, I remember seeing a cactus flower several meters away, but having already seen tens of *C. delicata* and taken scores of pictures, I hesitated whether to continue along or stop to take yet more pictures. But wait, the flower looked unusual so I walked towards it to find that, at long last, I had found *O. denegrii* in all its glory.

To say that I was overjoyed would be an understatement. Gone was the tiredness and gone too, the frustration. Immediately I got down on all fours and started taking pictures from all angles, afraid it may suddenly disappear. Several plants were found. Some of these cacti were seedlings. When I find young plants I am optimistic that rare taxa, such as this species, may yet have a chance to survive the impact of collecting and human expansion.

The plants were half buried in the ground. Some of them were under bushes, while others were exposed. The ground itself being of limestone consistency was slightly raised above the surrounding areas, with brownish volcanic rock only found associated with these cacti. They were so well camouflaged that after walking a little further away and turning back it took quite an effort to relocate them. Even



Obregonia denegrii at San Jose de Salamanca, Tamaulipas.

the sun hiding behind a cloud could make a difference to seeing them or not.

I was so engrossed taking pictures that I did not notice the man coming over who told me not to take any plants. I assured him that I was only taking pictures, at which he left me alone. It proves that this species is well known to the villagers, who are aware of the need for their protection, as it rightfully should be.

My next encounter with this species occurred more than four years later. On Saturday 8th January 2011, I travelled to the village of San Jose de Salamanca. I alighted from the bus near the turn-off from the highway, so I had to walk for some time before I hitched a ride on the back of a pick-up with several other people travelling to the village. My hat flew off in the wind.

I had gone to Salamanca to search for *Turbinicarpus* (*Gymnocactus*) *viereckii*. Unfortunately, I did not succeed in finding this

species, but as I turned back along the trail that would eventually take me to the highway, I examined the terrain and here I was surprised to find a number of *O. denegrii*. During this time of year they were not in flower but I was elated just the same, as I became one of the few people to have seen this plant twice.

These plants were more exposed to the sun and more sunken in the ground. Looking back, Salamanca is not that far away from San Vicente as the crow flies. It is only 5.6 kms. In the same area, I again found *Ariocarpus trigonus*.

Obregonia denegrii was discovered in 1923 by Alberto V. Frič, accompanied by Marcello Castañeda, while on a collecting expedition for the Haage Cactus Nursery at Erfurt, Germany. It was named in 1925 in a little-known periodical.

Obregonia is a monotypic Genus and was named for Álvaro Obregón, Mexico's first



A map showing the Jaumave valley and the places where *Obregonia* was found

president. Its unique characters have resisted attempts for it to be included in *Strombocactus* or *Ariocarpus*. The flowers are white with red filaments.

Although plants are found in limestone habitats, they grow well in peat-based compost in cultivation. *Obregonia* plants and seeds are readily available from major cactus dealers and there is no need to illegally remove plants from habitat.

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MELOCACTUS ON TWO CARIBBEAN ISLANDS

Ken Hancock describes his experiences searching for and finding *Melocactus macracanthos* on Bonaire and *Melocactus intortus* on Anguilla

When many of us think of the Caribbean Islands, we tend to visualize beautiful holiday resorts surrounded by rainforests. While this is true of many of the islands, a lot of the others are all, or partly, wind-swept coral deserts, with vegetation dominated by cacti and the few trees and shrubs that survive in these conditions. This article is about two of these islands, Bonaire and Anguilla and addresses one specific genus of Cactaceae found on them, *Melocactus*.

I have been fortunate in visiting these Islands a number of times, Bonaire on holiday and Anguilla on business. I found to my pleasure that they each have native cacti for me to investigate and enjoy. *Melocactus* are to be found on both of them and they flourish under the harshest circumstances that you can imagine. We would never try to grow the cacti in our collections in the very severe conditions under which these beautiful cacti live naturally.

As is well known, *Melocactus* includes around 40 species from the mainland and islands of the Caribbean, Mexico, Central and South America. They are globular plants, typically solitary and are very slow-growing. It is estimated that they can live for over a hundred years in habitat.

The main visual difference between *Melocactus* and most other globular cacti is that when they are mature, the body stops growing and produces a crown on the top called a cephalium. This region of dense spines is where the flowers and fruit are produced. The cephalium keeps growing for many years, and in some species can exceed the height of the body itself. (See Fig.1).

The cephalium, on the top of the globular body, looks like an oriental cap, leading to the



Photo: Garry Rolston

Fig.1 *Melocactus intortus*
Windward Point desert, Anguilla

common name of Turk's Cap Cactus that is given to this genus. *Melocactus* flowers are tiny, almost hidden in the cephalium, and are generally a shade of pink or red, produced in abundance between spring and autumn. They are generally self-fertile and the flowers are followed by fleshy, red fruits about one centimetre long.

Let me first tell you briefly about the island of Bonaire. It is in the eastern Caribbean, around a hundred and seventy kilometres north of Venezuela and is the most easterly of the ABC islands; Aruba, Bonaire and Curaçao. It has a hot, dry and windy climate.

The north eastern part of Bonaire is an arid desert. What vegetation there is consists mainly of cacti, acacia thorn bushes and the strange looking Divi Divi tree (*Caesalpinia coriaria*) whose branches grow horizontally on

Photo: Beryl Hamilton-Piercy



Fig.2 *Melocactus macracanthos* on a coral cliff near Spelonk Lighthouse, Bonaire



Fig.3 Large *Melocactus macracanthos* on a coral cliff near Spelonk Lighthouse, Bonaire Photo: author

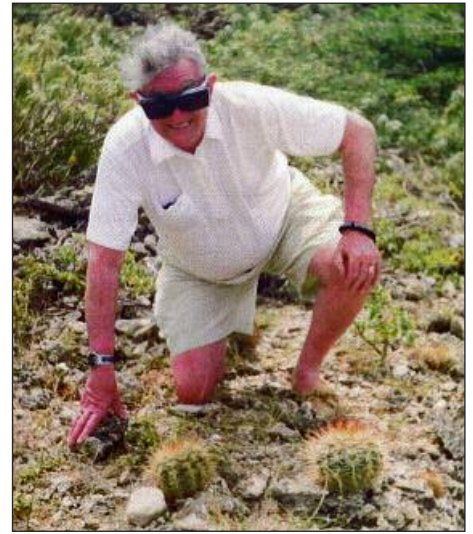


Fig.4 Immature *Melocactus macracanthos*, Bolivia district; Bonaire.

Photo: Beryl Hamilton-Piercy

the side of the trunk away from the continuous trade-winds. The cacti include *Cereus repandus*, a nondescript *Cereus* species, *Opuntia wentiana* (Fig.5), *Opuntia curassavica* and, of course, *Melocactus*. On Bonaire, I have only been able to find a single species of the genus, *Melocactus*

macracanthos.

Melocactus macracanthos (Salm-Dyck) Link & Otto, originally described in 1820 as *Cactus macracanthos*, has many synonyms, recent ones being *Melocactus citrispinus* and *Melocactus inclinatus*. This taxon was revised and neotypified with the illustration from Link and Otto (1827) by Thomson (2005).

Much of Bonaire is made up of fossil coral and it is on the cliffs and boulders of this fossil coral that the *Melocactus* grow. Incredibly, they thrive under conditions of complete lack of soil, extreme temperatures, long periods of drought, strong winds and, believe it or not, salt spray from the nearby Atlantic Ocean.

I initially found mature *Melocactus macracanthos* on coral cliffs a kilometre or so inland from Spelonk Lighthouse, on the windy north east coast of Bonaire. Driving north along the rough trail at the foot of the 30 to 40 metre high coral cliffs, I noticed at several points a considerable number of the yellow-spined *Melocactus macracanthos*, growing directly out of the near vertical fossil coral of the cliffs. (See Fig.2)

There was no soil to sustain these cacti, which were flourishing and in good health, with some of them a half a metre in diameter with tall cephalia (See Fig.3)

Although the body itself grows on bare coral, the roots creep through the tiny cracks in the

Photo: Ken Hancock



Fig.5 One of the many clumps of *Opuntia wentiana* found at the Slagbaai region, northern Bonaire

rock for many metres, seeking out the small amount of water that seeps down from the rare thunder storms and the hurricane season rains, at the same time absorbing minerals from the coral. This form of growth makes it virtually impossible to collect specimens in the field without destroying their roots.

Slowly driving further north, close to the cliff, we found that *Melocactus macracanthos* occurred quite frequently along the steep coral cliffs but were generally too high to be accessible. About three kilometres north of the initial cliff occurrence, we found an area of large boulders at the foot of the cliff, perhaps the remnants of an old rock slide. These had a large number of *Melocactus macracanthos* growing on them, some at reachable height. These were again in good condition and many had seed pods. However, upon closer inspection, it was found that most of the pods had been harvested, probably by the many birds of the area. However, a few pods with seed still in them were found. (See the horizontal seed pods in Fig.7. The pods on the top of the cephalium had been stripped of their seeds). Moving north again, further locations were found high on the cliffs. However all appeared to be *M. macracanthos* with no other species of *Melocactus* being found.

At another time, we drove over rough stony trails around the desolate north west coast of the island. Boka Barol is a small isolated beach on this coast, with fierce currents and surf,



Photo: Ken Hancock

Fig.7 *Melocactus macracanthos* at the foot of the coral cliffs, north of Spelonk lighthouse, Bonaire



Photo: Garry Rolston

Fig.6 *Melocactus intortus* with offsets and 2 cephalia. Windward Point desert;Anguilla

overlooked by a low coral cliff. However, on the cliff, on bare coral swept by salt spray from the strong winds and with temperatures typically above 30°C, I found a large mature *Melocactus macracanthos* thriving in this barren area. (See Fig.8)

On another visit to Bonaire I was able to find and photograph immature *Melocactus macracanthos*, again on fossil coral, but some kilometres away from the cliffs, perhaps as a result of a seed in bird droppings. (See Fig.4)

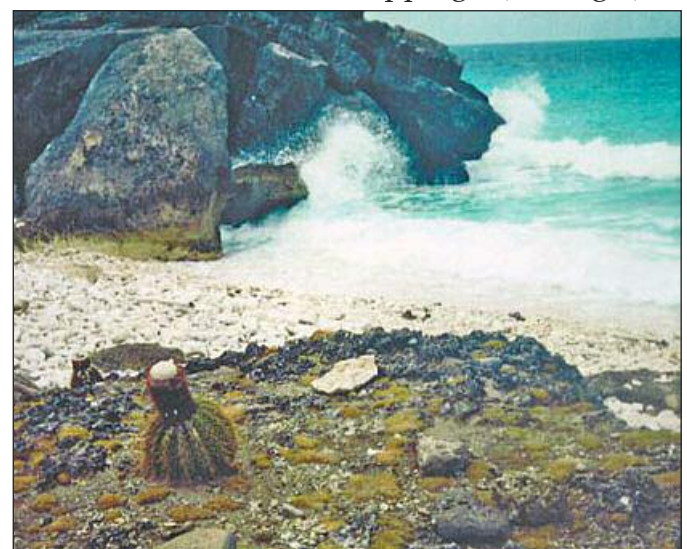


Photo: Ken Hancock

Fig.8 *Melocactus macracanthos* on the low sea-spray swept coral cliff at Boka Barol, Bonaire



Fig.9 Two very old *Melocactus intortus* with mature and immature companions: Windward Point desert; Anguilla.

Moving on now to Anguilla, a small island at the northern tip of the Windward Islands, in the Eastern Caribbean. I have visited this island several times on business with a colleague, Garry Rolston. Here I also had the opportunity of exploring for *Melocactus*. Although generally low and comparatively lush, the northern end [Windward Point] of this small island is an arid, windswept plateau. It consists mainly of bare, very sharp fossil coral, much of which is swept by sea spray from the prevailing east wind. It covers several square kilometres.

In this desert area, plants of *Melocactus intortus* (Miller) Urban were found; Synonyms include *Melocactus antonii*, *Cactus antonii*, *Melocactus intortus* var. *antonii*, *Melocactus communis*, *Cactus intortus*, *Melocactus pedernalensis*, *Cactus melocactus* var. *communis*.

The *M. intortus* were quite common all over Windward Point (See Fig.1) and ranged from seedlings to very mature specimens (See Fig.9).

We continued exploring the area, examining many specimens of *Melocactus intortus* and collecting seed. Then, although *Melocactus* are typically solitary plants with a single

cephalium, we found to our surprise a *Melocactus intortus* with offsets and two cephalia. (See Fig.6). In my experience, this is unique. As in Bonaire, all of the *Melocactus intortus* grew imbedded in the cracks in the bare coral. No other indigenous cacti were found on the island, although several *Opuntia* species were growing in gardens and alongside roads in the southern part of the island.

Melocactus is a fascinating genus to collect and, once mature with a cephalium, they flower easily and frequently but, being very slow growing, you have to wait a long, long time if you grow them from seed!

References

Thomson, G. (2002) *Bradleya* 20: 29-44. A re-evaluation of the taxonomic status of the genus *Melocactus* in Aruba, Netherlands Antilles.

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[Ken Hancock](#)

WHY ECHEVERIA PENDULIFLORA?

John Pilbeam describes his detective work needed to find the locality and subsequent search for a plant not now seen in cultivation and, of which there are few published images.



Photo: John Pilbeam

Fig. 1 John Trager halfway up the steep hillside

In 2009 Derek Bowdery, David Neville and I joined our good friends resident in Oaxaca, Jim Peck and Mary McLenahan, followed by John Trager and Myron Kimmach from California, USA, for a week or two seeking whatever we could find by way of cacti and succulents in that cactus and succulent enriched southern state of Mexico.

I had one particular plant in mind before getting there, and spent some time searching the maps we had to discover its likely whereabouts. The plant in question was *Echeveria penduliflora*.

Why did I want to seek *Echeveria penduliflora* in the wild? Because it has not appeared in cultivation for some time, and the only photos

Photo: John Pilbeam



Fig. 3 Cultivated Agaves for the liquor trade



Photo: John Pilbeam

Fig. 2 The home-made dam and precarious crossing point

Photo: Martin Smith



Fig. 4 *E. penduliflora* at Cante (now Charco del Ingenio)

I had photographs of it when I was striving to obtain a complete set for my book in the early years of this century. They were of the flowers by Charles Uhl, and a plant photographed by Martin Smith in what was known at that time as Cante Botanical Garden, (now Charco del Ingenio), Guanajuato, Mexico, collected by Charlie Glass in 1995 not far from Tlaxiaco, west of Oaxaca city.

After an afternoon spent ferreting through a helpful census publication, where I at last

Photo: John Trager



Fig.6 *E. penduliflora* in habitat

Photo: Charles Uhl



Fig. 5 *E. penduliflora* flowers

found the village mentioned in the original description, and much poring over maps, none of which gave it a mention, we determined roughly where we might find this species, and the hunt was on.

The first part of the journey was easy except for the traffic, since it was one of Mexico's main roads kept in good order. But then we turned off onto a side road, where the traffic was less, but the road was quite narrow, and then of course off on another side road which was just a dirt track. After some time when we thought we must be in the right area, but with no signs to enlighten us, we asked a local elderly man, with legs like parentheses, walking along the road, and he confirmed that the small village we were heading for was indeed ahead of us, and not far.

Very soon we found ourselves driving along by a field bordered by a low hillside of cultivated Agaves destined for the liquor trade, but with a stream on the left of the road, and an almost sheer cliff on the other side of the water. My first reaction on seeing the cultivated field and hillside with neat rows of *Agave tequilana*, was that it could well have been the original site for the *Echeveria* we were seeking, but then I started looking more closely at the very steep terrain on the other side of the road by the stream.

The steep hillside was shady with quite a



Photo: John Pilbeam

Fig. 7 It is well-known that Derek Bowdery likes large plants! This cypress, *Taxodium mucronatum* certainly fits the bill!

covering of shrubs and with tall trees by the riverside. It looked a likely spot for Echeveria, and we stopped to explore. It looked possible to gain the bank beneath the start of the cliffside by means of a modest sized dam a foot or two in height built by locals for some purpose, and we looked to the younger members of the party to negotiate first the river crossing, which looked somewhat hazardous, with a good chance of taking an unexpected bath, and then the steep, part cliff hillside the other side, which looked even more daunting. Derek and I admired the view and a Ficus embracing lovingly a tall conifer, *Taxodium mucronatum* the same species I was told that grows in Tula, reckoned to be the largest in girth in the world and something over a thousand years old.

John Trager emerged eventually dry of foot and triumphantly showed us photographs of what was undoubtedly the species we sought, *E. penduliflora*. The location is some distance from where it was found by Charlie Glass, so it appears that it may well be found in the area between, in similar situations.

Because of its chosen habitat it is not a strongly upright stemmed plant, prepared to sprawl down and loop up at the tip, and although the plants found at the site were

mostly solitary, it tends to cluster in cultivation, as the photo of it at Cante Botanical Garden shows.

I was told that in cultivation it tends to believe it is still on a cliff, and after making an initial effort to grow straight upwards, gives up and leans affectionally towards its neighbouring potted plants like a drunk not trusting his legs to keep him from falling, seeking a shoulder to steady himself upon. It is to be hoped that it gets into cultivation again and delights enthusiasts for this genus with its presence and particularly the very individual flowers for which it was named.

JP



Photo: John Pilbeam

Fig. 8 The giant *Taxodium mucronatum* at Tula

TRAVEL WITH THE CACTUS EXPERT (2)

Zlatko Janeba continues his travels around the US where there are lots of interesting plants to see, not just cacti.

Photos: Z. Janeba



Fig.1 *Echinocactus polycephalus* growing in the dense sagebrush cover at elevation of some 1550m (Charcoal Kiln Rd, Death Valley NP).



Fig.2 Annual herb *Mimulus bigelovii* south of Searles Lake, California.

Thus, satisfied with the pictures taken in the habitat of *Sclerocactus polyancistrus* f. "albino" near Johannesburg (see the **Cactus Explorer** 2), we headed towards the famous Death Valley National Park. Just south of Searles Lake (near Trona, CA), along Hwy. 178 (also called Trona Rd) we saw numbers of desert annuals in full flower (e.g. *Eremalche rotundifolia*, *Eriogonum* sp., *Mimulus bigelovii* [Fig.2], *Monoptilon* sp.). These ephemeric herbs with beautiful flowers were growing in pure granite substrate at an elevation of 550m above sea level.



Fig.3 The strange root parasite *Pholisma arenarium* (Boraginaceae) in Panamint Valley, California.

On arriving at Panamint Valley we chose to continue eastwards along Trona Wildrose Rd, towards Wildrose campground in Death Valley N.P. We stopped in Panamint Valley to take pictures of huge clusters of *Echinocactus polycephalus* and flowering *Opuntia basilaris* [Fig.5] with gorgeous views of Telescope Peak (with 3366m being the highest point within Death Valley N.P., as well as in Panamint Range), powdered with snow. We were at elevation of about 600m and it was pretty hot (air temperature ~37 °C and soil temperature at the surface ~51 °C in the shade, at about 15:30).



Fig.4 Most specimens of *E. polycephalus* had really big heads and superb ivory spination (1550m Charcoal Kiln Rd)



Fig.5 *Opuntia basilaris* with snow powdered Telescope Peak in background.

When walking back to the car, we found flowering *Pholisma arenarium* [Fig.3]. It is a parasitic plant from the family Boraginaceae, growing on the roots of various shrubs, such as *Ambrosia*, *Chrysothamnus*, *Hymenoclea*, etc. *Pholisma* forms compact cylindrical or ovate-shaped heads composed of tiny, hairy, glandular, leaves producing numerous tiny lavender flowers.

Then we ascended higher into the Panamint Range along Charcoal Kiln Rd which runs towards Charcoal Kilns and Mahogany Flat. We made a stop at an elevation of some 1550m and surprisingly (at least to me) we found a population of *Echinocactus polycephalus* forming big clumps, composed of huge heads with very strong, often ivory-like spines [Fig.4].

Although *E. polycephalus* is reported to grow at elevations up to 1700m, this is the highest population of this species I have probably seen personally. Especially interesting was the fact that the cacti were growing between and under large bushes of sage brush (*Artemisia tridentata*). By then I had seen this species only growing in completely open spaces. Also, at this elevation, I would expect smaller plants to grow, with much smaller heads. Anyway, it was nice to take pictures of these attractive cacti with the remains of snow in the close background [Fig.1]. I would expect the temperatures here to go down well below 0°C during the winter nights.

In the same area, a little bit higher up (1670-1750m), we also observed *Echinocereus engelmannii*, *Opuntia basilaris*, *O. hystricina*, and flowering hemiparasitic plant *Castilleja chromosa* from the family Orobanchaceae [Fig.6].

Later we headed back along Wildrose Rd and north of Emigrant Pass we turned eastwards to Aguerberry Point Rd, with the intention of checking the populations of *Sclerocactus polyancistrus*. At Aguerberry Point, altitude 1870m, we saw only four plants of these *Sclerocacti* before it started to get dark. If you walk around a little, you can also find *Echinocereus engelmannii* and nice yellow-spined *E. triglochidiatus* growing here.



Fig.6 *Castilleja chromosa* (Orobanchaceae) or Indian paintbrush (Charcoal Kiln Rd, CA). It is probably the most widespread species of the genus *Castilleja* in the SW of USA.



Fig.7 Thinly spined specimen *Sclerocactus polyancistrus* at the top of Aguerberry Peak (Death Valley, CA).

Interestingly, *Sclerocacti* at the top of Aguerberry Point do not seem to have such a dense and attractive spination [Fig.7] as the cacti growing at several other locations nearby, at slightly lower elevation (~1700-1800m).

Since it was dark already when descending from Aguerberry Point, we decided to stay overnight at the Eureka Mine, being the bad guys since it is prohibited to camp in Death Valley N.P. apart from the designated campgrounds.

To be continued ...

[Zlatko Janeba](#)

UEBELMANNIA PECTINIFERA

VAR. ERIOCACTOIDES

Rudy Krajča, from the Czech Republic, recounts his success at finding the habitat of a spectacular form of *Uebelmannia pectinifera*

Photos: Václav Toman





In the 1990s, I received seeds of plants of the genus *Uebelmannia* from Otakar Potyka, a well-known cactus grower from the Czech Republic. Potyka himself was not able to identify the plants, which he had been given by German cactus collectors in the 1980s. Thanks to his experience of growing cacti and succulents, however, he was able to keep the plants alive and in good condition. The plants were successfully pollinated and produced seeds.

However, the habit of the seedlings was surprising, as they did not resemble the adult plants at all, and their resemblance to juvenile plants of the genus *Eriocactus*, especially *E. leninghausii*, was obvious. Since 1992 I have focused my interest on the plants of the genus *Uebelmannia* and I visited Brazil for the first time in 2005, when I tried to see the plants growing in their natural habitats. Although I visited a number of previously known localities of *Uebelmannias*, and even found several new ones, I could not find anything resembling the above mentioned plants obtained from Potyka.

Finally, in autumn 2006, during a difficult expedition to the Serra do Espinhaco Mountains, I succeeded in finding the plants in their natural environment, thanks to both luck and hard work in the field. During my next expedition in 2009, my cactus-partner Václav Toman and I found other populations of the mentioned plants. During three years of field research, we found altogether six populations of the newly-recognized variety.

The new variety is characterized by some



distinctive features by which it differs from the closely related, already described taxa of the *U. pectinifera* complex. It is characterized by an upright habit, usually reaching a height of 30–50cm at maturity, while the oldest and tallest specimens grow up to 80cm tall. The populations we found consisted of all the developmental stages, from the smallest seedlings to very old individuals. Their appearance is conspicuous, as the plants are covered by striking yellow (golden-yellow) to whitish-yellow short needle-like spines pointing diagonally and/or horizontally, resembling in habit seedlings of the genus *Eriocactus*. In the later stages of growth, plants have a lesser number of longer greyish spines. At maturity, the stems have the shape of cylinders, spineless at the base and with a white or bluish patina on the skin in the upper part of the stem.

Mature plants are also covered with conspicuous, young, yellowish (golden) brown spines, up to 40mm long, while the apex wool is usually absent - this is a feature rather typical of *U. pectinifera* var. *horrida* or var. *flavisпина*. Spines are relatively long, grey in colour and easily fall off from old areoles, by which they differ from the old plants of *U. pectinifera* var. *flavisпина*. The new var. *eriacactoides* also differs in some morphological characters such as plant height, distance between the areoles, lack of wool at the apex, as well as the habit and characters of juvenile



plants.

The plant belongs to the subgenus *Leopoldohorstia* (sensu Braun & Esteves Pereira 1995), or alternatively to the *U. pectinifera* aggregate (sensu Schultz & Machado 2000).

The ecological features of the new variety are rather peculiar and different from other taxa within the aggregate. The plants are commonly found individually growing on ridges and hill tops in an arid part of the Serra do Espinhaco Mountains, in mainly horizontal crevices and also in vertical(!) quartzite rocks, on inaccessible, rocky and steep slopes. One population was exceptionally found on a flat rocky plateau. The plants of the new variety grow on steep slopes sparsely covered by small, mostly deciduous, shrubs (caatinga formation). The crevices are also often inhabited by seedlings of the variety.

Associated cactus flora includes *Discocactus placentiformis* var. *pulvinicapitatus* (an extremely spiny form), *Cipocereus bradei*, *C. crassisepalus*, *C. minensis*, and *Pilosocereus aurisetus*. Almost all populations were found at 1100m. However, we found the last one at only 700m. This was in the northern part of the distribution area of this variety.

Our claim that the newly recognized variety does not belong to *U. pectinifera* var. *flavispina* is further supported by the fact that its



populations were found far from the distribution area of the latter variety and no morphological transitions between the two varieties have been found.

The nearest population which may share some characters with var. *flavispina* was found about 15 km to the south. This population, we call it 'rock *flavispina*', requires further investigation. Geographically, the closest to the variety treated here is a population of a new form of var. *multicostata*, which grows in the vicinity of the village of Sao Joao da Chapada, where another transitional population is also found ('*flavispina-multicostata*').

The variability range within var. *eriocactoides* is very limited: plants are almost uniform, only minor quantitative differences exist between individuals. Only in the south-eastern part of the distribution area we found plants with characters similar to var. *multicostata*, while in the northern part of the distribution area the juvenile plants have thicker and denser spines than the type. As far as we could explore, the new variety of *Uebelmannia* can be found within an area 12km long and 3–4km wide, scattered in several populations, some large, some small.

The juvenile plants up to 5-8cm in diameter have conspicuous spines different from those of any other taxon of the aggregate. Relatively short, up to 10 mm long, light yellow (rarely whitish), fine needle-like spines radiate in all directions, often curved downwards. The arrangement of the spines (an overall habit) reminds one of juvenile plants of the genus *Eriocactus*.

The stem of adult plants is clavate or cylindrical, 30–50(–80)cm high, only the upper



1/3 to 1/4 clothed with spines, and the base of the stem without conspicuous spines and areoles. The epidermis is covered by whitish (to bluish) bloom, the newly growing stem apex is light green, soon covered by a coating. The young apex is usually without wool, exceptionally covered with a little wool. There are 18-25 straight ribs with areoles located individually on the ribs and not joined into a single line.

In young plants the spines on the areoles are pointing in all directions, soft, needle-like, 5-10mm, 11-20 per areole; in mature plants the spines are straight and almost pectinately arranged, sometimes spread, 1-4 per areole, stiff, new spines yellow brown, contrasting with older spines, which are grey, 20-35(-40)mm long. Quantitative and qualitative characters of the flowers are identical with those of the other taxa of the *U. pectinifera* aggregate.

Several years of my experience in cultivation suggest that growing of var. *eriocactoides* as seedlings or rooted cuttings is relatively easy compared to the more difficult cultivation of plants related to var. *flavisпина*. On the other hand, it is clear that seeds and seedlings of this taxon will be quite rare items for the coming



years, since it takes many years for the plants to reach reproductive age. Thus, we carefully label all plants for sale with detailed record of the clones (in case of the cuttings) or as grafted seedlings, so we know in the time horizon of ten years which we can pollinate with each other.

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VZÁCNÝ KYTKY . CZ

Austrocactus ~ Pediocactus ~ Sclerocactus ~ Uebelmannia ~ etc.

THE MIDDLE EAST COMMAND EXPEDITION TO SOCOTRA, 1967

Roy Mottram presents an account of an important succulent plant expedition to Socotra. This is the first time the expedition pictures and cartoons have been published. roy@whitestn.demon.co.uk



Fig. 1 The heading of the special note-paper printed for the expedition, featuring an outline of the main island.

Photo: Roy Mottram

In present-day Yemen, the port of Aden used to be a strategic stopping point between the UK and India, and a British military presence, known as Middle East Command, was based there. The period of 1963-1967 was, however, in an almost permanent state of emergency, with considerable unrest, and by 1966 a decision had been made to withdraw British forces from the region.

An expedition was arranged by Middle East Command with the purpose of exploring the then relatively unknown island of Socotra. This was seen as a last opportunity to do so before the British finally departed from the Aden colony, which eventually took place in June 1967. The Patron of the expedition was The Right Honourable The Lord Shackleton, OBE, and it was sponsored by Admiral Sir Michael Le Fanu, KCB, DSC. The Leader was Major Peter G. Boxhall, F.R.G.S., Int. Corps. (Fig. 1)

This Middle East Command Expedition had

a very broad remit, including the gathering of scientific as well as strategic data, so a team was assembled to include a range of scientific disciplines such as archeology, geology, meteorology, and so on. For its botanical team, Major Boxhall requested the Director of Kew to recommend a plant collector, and this duty fell to a young botanist who had been working in the Kew herbarium since 1962 called Alan Smith (later Radcliffe-Smith).

As it happened, John Lavranos was at that time studying for degrees in botany and geography, having decided that his existing law and economics degrees would not be much use to him in his plant studies. Believing that this expedition had been sponsored by Kew, he wrote to the Director asking if there was any chance of him joining it. After some protracted correspondence towards the end of 1966, it was finally agreed that his past experience botanising elsewhere in South Arabia would be invaluable to the expedition,

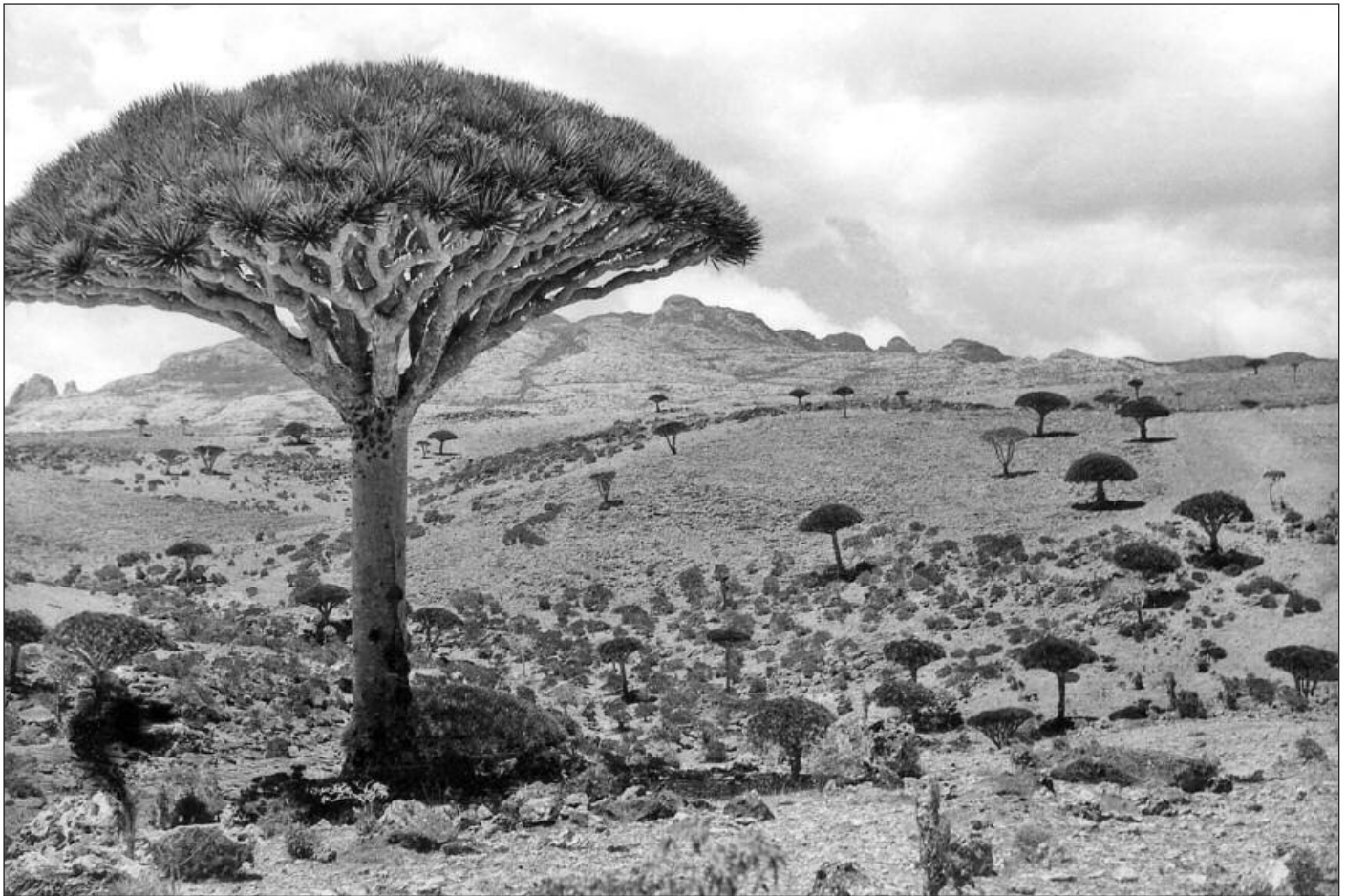


Fig. 2 *Dracaena cinnabari* (Wadi Zirik).

Photo: Allen Radcliffe-Smith

so he became a member of the botanical contingent. Later, another young botanist from Kew, C. Fraser-Jenkins, also joined the team.

Transport inland for the botanical team was by camel, since Socotra had no roads suitable for vehicles, and long distances had to be traversed on foot. In the period from late March to the end of May, 798 plant collections had been made of either herbarium specimens or live plants, a significant proportion of the entire flora. The live plants were divided mainly between Kew and John's garden in Johannesburg, while Les Cèdres, France, and the Pretoria Botanic Garden also received many duplicates. Alan Smith stayed over for an extra 10 days after John had departed, but the entire enterprise ended on 10 June 1967, slightly earlier than had been planned because of the troubles.

Socotra is the anglicised form of the Arabic name Suqutrá, itself from a Sanskrit name meaning bliss, and the ancient Greeks knew the largest island as Insula Dioscoridis. It has

highlands of granite and limestone, rising to over 1500m., the caves of which had been inhabited for around 3000 years by a local people of south Asian origin, whose language (Suqutri) and customs were somewhat unusual. In more recent times these were joined by Arab and Somali fishermen and merchants, with goats as their main livestock, and the economy today is now much more diversified with cattle and crops under cultivation such as dates.

Some 37% of the native flora is endemic to the Socotra archipelago, and occurs nowhere else. The most iconic plant of the landscape is *Dracaena cinnabari*, the Dragon's Blood Tree, so-called for a bright red resin exuded from its wounded trunk and branches, much prized as a varnish, medicine, incense and dye in early times, known to the Romans in the first century A.D. (Fig. 2)

Also of economic value is franckinsense, an aromatic incense produced from *Boswellia socotrana* and other species by scoring the

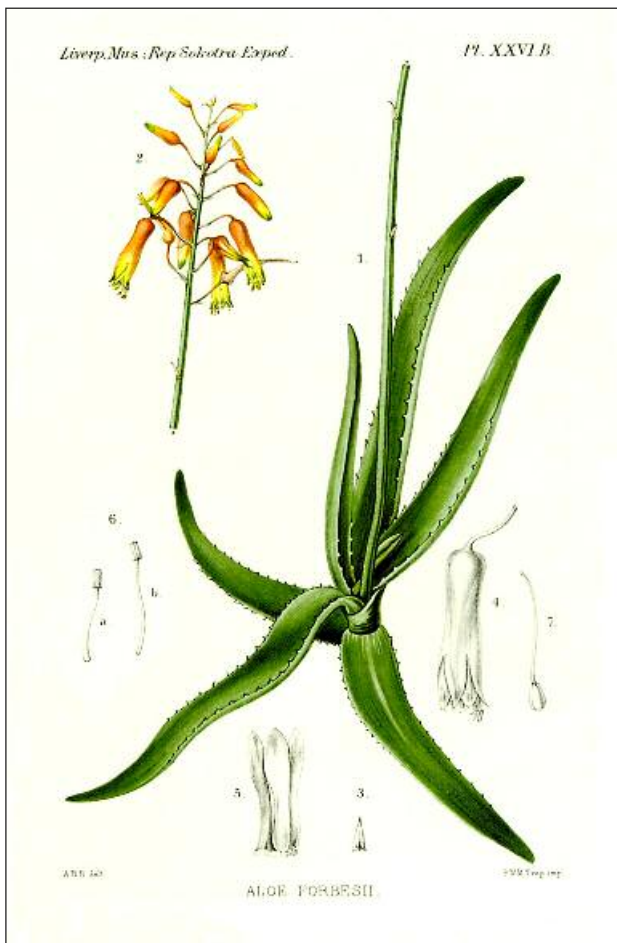


Fig. 3 *Aloe forbesii* (Socotra). The Balfour protologue illustration and holotype, from Botany of Sokotra and Abd-el-Kuri: t.26B. 1903.



Fig. 4 *Aloe squarrosa* (SW of Qa'allansiya, base of limestone cliffs) from Flowering Plants of Africa 41:t.1611. 1970. Painted by Rhona Collett. wood. This exudes a resin that quickly hardens into beads. These also occur elsewhere in south Arabia.

One of John's objectives was to determine which Aloes grew in the islands. His conclusions were published soon afterwards

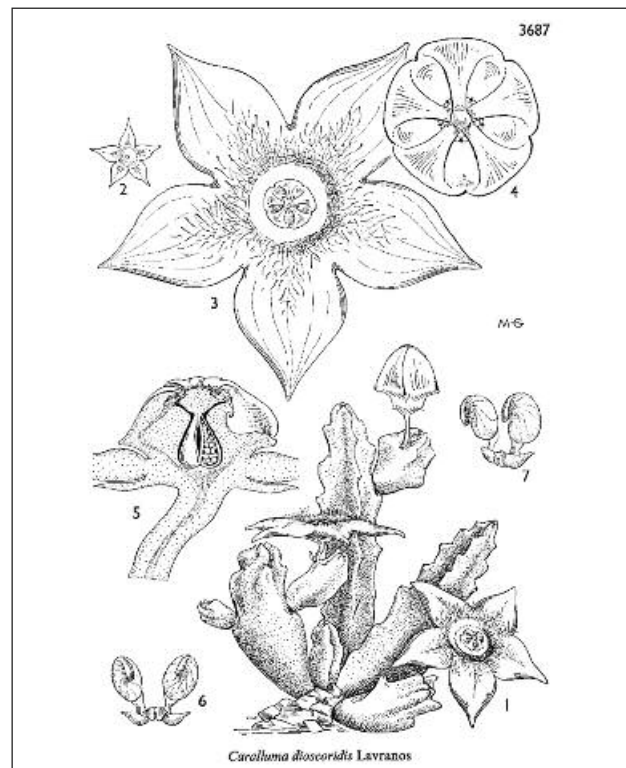


Fig. 5 *Caralluma dioscoridis*, the protologue illustration from Hooker's Icones Plantarum 37, Ser.5 7(4): t.3687.

(1969), where John's conclusion was that only two species could be clearly defined, *Aloe squarrosa* and *Aloe perryi*. However, since then *Aloe forbesii* (Fig. 3), first described by Balfour (1903: 511-512, t. 26B), has been reinstated, having been unknown in cultivation until it was reintroduced in 1967 by this expedition.

Aloe squarrosa had been first described in 1883 from Balfour's herbarium sheet, and no live material was in cultivation until Sir John Kirk, a naturalist who spent 21 years in Zanzibar sent a similar plant with the place of origin given as 'Zanzibar'. Baker named Kirk's plant as *A. concinna* in 1919, but as that name was already occupied, Milne-Redhead renamed it *A. zanzibarica* much later in 1947.

In order to compare Kirk's plant with the aloe occurring at the type locality of *A. squarrosa*, John took a small cutting of Kew's original plant on the expedition, and lo and behold, it matched the plants found in habitat so well that John inadvertently mixed them up and couldn't distinguish them. No such plant occurs in Zanzibar, so it is supposed that Sir John Kirk had obtained his plant from Socotra via an Arab trader. A fine painting and full description of the plant collected on the 1967



Fig. 7 *Adenium socotranum* & *Dendrosicyos socotrana* (Jabal Riyhid). With Cpl. T. Mannering.

Photo: Allen Radcliffe-Smith

expedition can be found in Lavranos (Fig. 4, 1970b).

Stapeliads were John's other great passion, and at the time only the very distinctive *Caralluma* (*Sanguilluma*) *socotrana* was well known, being native to a large area of East Africa as well. It had been the only stapeliad to have survived long enough to flower at Kew after Balfour collected several species in Socotra in 1880. The only other stapeliad

known from the archipelago was *Edithcolea sordida*, now considered a form of *E. grandis*, also with a wide range of distribution in East Africa. The expedition doubled the number of known stapeliads of Socotra with the



Fig. 6 *Dorstenia gigas*. A young plant in the nursery of Petr Pavelka, Prague, in 2009. Photo: Roy Mottram

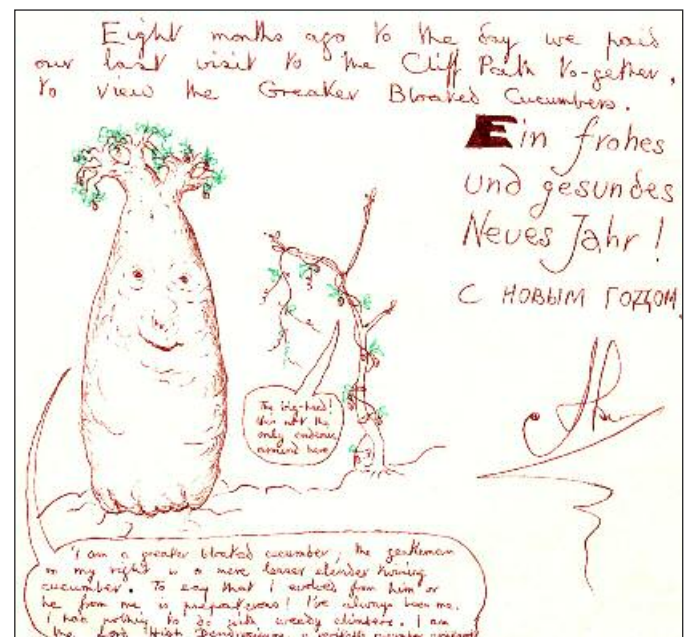


Fig. 8 New Year greeting from Allen Radcliffe-Smith to John Lavranos at the foot of a personal letter dated 3 Jan 1968. Features a cartoon of a bragging *Dendrosicyos socotrana*.



Fig.9 On Abd Al Kuri, late April or early May 1967. John Lavranos standing, Alan Radcliffe-Smith nearest of the three crouching. Photographer unknown.

descriptions of *Caralluma (Duvaliandra) dioscoridis* (Fig. 5) and *Echidnopsis insularis* (Lavranos 1970a, 1971).

Other Socotran endemic succulent plants of special interest include *Dorstenia gigas* (Fig. 6), *Adenium socotranum* (Fig. 7), and *Dendrosicyos socotrana* (Fig. 7-8), all tree-like with swollen trunks and ultimately becoming very large.

Also explored was Abd al Kuri, a small rocky island lying about 105km south-west of Socotra (Fig. 9). It is completely semi-desert with little vegetation, very different from the main island of the archipelago, and completely devoid of any trees. The few inhabitants are Arab fishermen. Balfour had also explored the island and was responsible for collecting and naming the one succulent of special interest from there, namely the distinctive *Euphorbia abdelkuri*.

The leader of the botanical party, Alan Radcliffe-Smith (1938-2007), worked at Kew from 1962 until his retirement in 1998. He was

a specialist and leading expert in the Euphorbiaceae, but mainly the herbaceous rather than succulent species. His lively sense of humour spilled over into his correspondence, which was frequently enlightened with puns and decorated with skilfully executed cartoons, often with spoof Latin names and phrases, and sometimes afterthoughts in tiny writing crammed into the margins (Fig. 10). He was profoundly religious and subsequently became a leading member of the Creation Science Movement, very odd for a scientist since the movement does not accept the derivation of new species by evolution.

John Lavranos of course needs little introduction because his botanical explorations throughout Arabia and Africa and new succulent plant introductions were arguably the most extensive and important of the twentieth century.

The majority of the new taxa arising from the expedition were published by Kew in a special part of Hooker's *Icones Plantarum*, comprising



Fig. 10 Two satirical views of Alan Radcliffe-Smith botanising in South Arabia, from his letter to John Lavranos dated 18 Aug 1967.

descriptions and botanical drawings of 28 taxa, to which John contributed his new *Caralluma* (Fig. 5, Lavranos 1971). The correspondence archive relating to this expedition and the events of 1966 to 1968 pertaining to it was entrusted to the writer in 2011, and is now catalogued and digitised for the use of other researchers.

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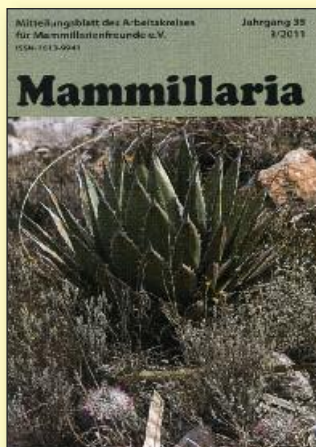
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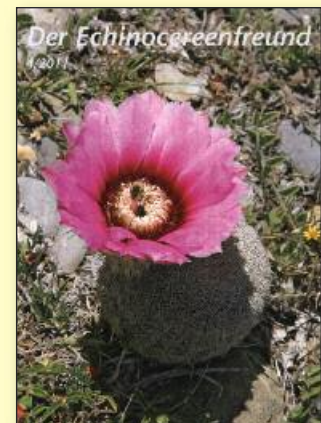
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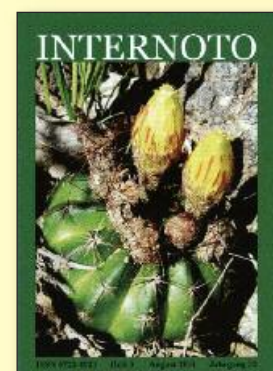


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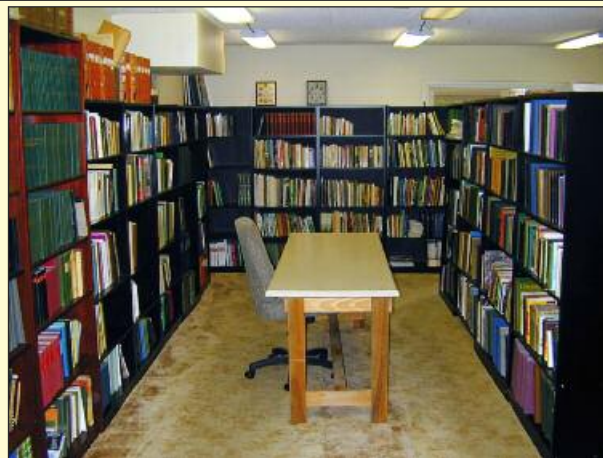
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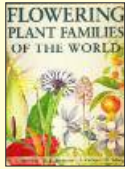
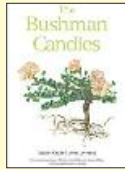


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