Summary

3 · Editorial 16 | Eduart
4 · Xerophilia 15’s Favorite Quote | Xerophilia
5 · Xeric flora in “La Hoya” craters region | Pedro Nájera Quezada
45 · Myrmeckodia beccarii - a pictorial appraisal including epiphytic companion species – from Yarrabah, South of Cairns, to the “southern form” habitat in the Hinchinbrook Channel swamps to north of Townsville - part 3 | Derrick Rowe
61 · Notes on Mammillaria pectinifera F.A.C. Weber | Elton Roberts
71 · Echinocereus aff. chalettii in Baborigame | Ricardo Ramirez Chaparro
83 · Sedum burrito Moran, the succulent from nowhere | Marco Cristini
95 · Disphyma australe (Sol. ex G.Forst.) N.E.Br., in Rangitoto | Eduart Zimer
103 · Mammillaria heidiae Krainz., the hidden beauty | Stefan Nitzschke
105 · In memoriam Rudolf Grym | Xerophilia
108 · The genus Lophophora by Rudolf Grym | Xerophililia
109 · Online journals | Xerophilia
110 · Romanian abstract | Xerophilia
113 · Interesting offer of cacti seeds from South America | Xerophilia
115 · Interesting offer of old great cacti specimens as nowhere in Europe | Xerophilia
It's early spring in the Northern Hemisphere and I guess most of you can hardly wait to enjoy the sudden rush of flowering plants and new growth in your gardens and greenhouses. It's just the best time of the year! And many of you, of course, will be pleased (and proud) to present their miraculous specimens, grown quietly in automatic controlled greenhouses, in numerous events, competitions and exhibitions of plants. And some of you will travel to Mexico, or maybe elsewhere, perhaps for the first time in legendary habitats of cacti and succulents, or for the 10th time, or for the 100th time, who knows? In a far more quiet place, away from the bustle of the civilized world. And, maybe, some of these guys will want to see what's beyond the next mount, where no tourist was ever before.

It is very easy to travel in today's world, relatively cheap and to a certain extent available to everyone who has that bitter determination.

On long term, this is bitter sweet. I'd really like to be able to go back in time. Not too much, maybe only 400 or 500 years. To see with my own eyes to what extent the new inhabited land has changed. I'd love everyone could see this, simply by taking the view, closing the eyes and simply see how the place was looking like only 500 years ago, just a tiny drop in the earth's life. I'd love to see the builders building dams in New York, to feel the wind of the Mexican Altiplano, to row on Lake Taihu facing the fresh breeze. There is no smog cloud visible from the space drifting over Southeast Asia. Would I bother to swim in Gange? Probably yes, and I would probably drink water from Oshiwara river as well.

"We are, quite literally, gambling with the future of our planet for the sake of hamburgers". I just wonder how happy and free our grandchildren will live on this earth...

On a different note, I would like to note an important change of the layout. We limited our journal to only two text layers – English and Original. This was a much discussed and debated issue. In the end we decided to do what's best for our e-zine. It is simplifying our work, affecting only a reduced number of readers. Of course, Romanian texts will be published from now on in the Original layer in Romanian and can be read as such by our Romanian readers. No bother for most of our readers.

Once again, we have to thank all of you, especially to you dear readers worldwide, from more than 100 countries and territories, who constantly show your interest and loyalty, and always give good reasons for Xerophilia’s contributors to write, and our team a purpose for existing and working for you.
Peter Albert David Singer, PC is an Australian moral philosopher. He is the Ira W. DeCamp Professor of Bioethics at Princeton University, and a Laureate Professor at the Centre for Applied Philosophy and Public Ethics at the University of Melbourne.

Xerophilia 16's Favorite Quote

We are, quite literally, gambling with the future of our planet for the sake of hamburgers

Peter Singer
This crater region, known locally as La Hoya, is located 2 km west of Federal Highway 57 at km 33 stretched between Matehuala SLP-quadrant 22°26’N, 100°49’W and 22°21’N, 100°46’W, on the geological formation known as Cuesta del Cura.

These are a series of concave cavities, known technically as maár (killing), a type of volcanic incident during which a phreatic-magmatic eruption is caused; in our case it occurred by the intraplate basin and range Mexican Plateau system activity during the Middle Pleistocene or late Pliocene.

These events occur on contact of magma flow with the water table, causing a large explosion caused by the forming vapor pressure, leaving large craters and ejecting material several kilometers away; the maárs are usually filled with water and are known in Mexico as axalapascos; however, when they don’t have water inside are known as xalapascos.

La Hoya craters are all dry (xalapascos).

The site consists of four craters of which two are already fully silted, one being half filled and the last, the most notorious, is exposed and is named Hoya Honda.

The area has been upheld over time by the belief of the craters being caused by large meteorites, and unfortunately this is even still taught in local primary schools, despite of existing research supporting the real cause.

It just sounds maybe more romantic to say that this was caused by “something” that fall from sky.

This study aims to determine and compare the floristic diversity of the two craters that are still not covered with silt, this as an addition to the floristic knowledge of the state focused on an area of interest and high biodiversity that should be considered for right protection.
The depth of the crater is about 300 meters from the highest point (2022 m above sea levels) to the lowest point (1719 masl) and forms an ellipse of 1100m length by 800m in diameter; it is surrounded entirely by walls of sedimentary origin, with obvious signs of tectonic activity since the rock strata are strongly undulating around the cliff.

It is perfectly useful at this point to refer to an article “Mitos y leyendas de México, así como tradiciones” concerning the likelihood of it being a pre-Columbian astronomical observatory site.

Ejected materials, from this crater or from the other craters, have been found near the Faculty of Agriculture and Veterinary Medicine at the Autonomous University of San Luis Potosí (UASLP-FAV), 20 kilometers south of the crater, supporting a strong evidence of the event, such as fragments of a very particular type of igneous rock, known as Lherzolite, which is not found in any other surrounding areas close by and are easily recognized by the presence of olivine rocks filled with low iron content, giving the glass a yellowish green hue.

Therefore it appears that these rocks, found occasionally in the Valle de la Palma, are from a fracture of the mantle craters in question; while the majority of igneous deposits, ash and pyroclastic material were located nearby, at a distance of between 3.0 and 6.5 km north of the crater and having a thickness of up to 100 meters.
La Hoya Chica (La Hoya II)

The depth of the crater is about 65 meters from the highest point (1880masl) to the lowest point (1813masl). It is partially formed by layers of sedimentary origin and there also is another section formed of a material known as tezontle (solidified Lava froth).

This is the late relict site of *Mammillaria tezontle*\(^1\), which should be valued for conservation because of its imminent danger of extinction by removing and looting of specimens or habitat loss.
La Laguna Seca

1 - Details of the vegetation in the area, mainly composed of Yucca, Agave, Cylindropuntia, Condalia and Erioneuron. 2 - Aerial view of the whole crater area - La Laguna Seca.

Laguna Seca was possibly the largest crater; however, as it has been at the base of Tangamanga Basin (St. Joseph Basin 1 and 2) it is completely silted but still noticeable from the air. The site is currently used as an agricultural area. The historical name Laguna Seca, comes from being a character endorheic basin, this intermittent lake that fills up during the rainy season works as a recharge zone to the groundwater table.

Potrero La Hoya Honda (La Hoya de Montecillos)

1 - Panoramic view of the crater now used as an agricultural field. 2 - Aerial view of the whole crater area - Protero La Hoya Honda.

This is a small valley located in the mountains of El Coro, just north of the crater La Hoya Honda and southeast of the community of La Hoya, corresponds equally to a silt crater and is used for cattle pasture and as an agricultural field.

The latter two sites have lost entirely the exposed edge that would be suitable habitat to host various succulent species, and both have a very low diversity of such plants.
1 - View of the cliff in a section of the crater. Observe on the cliff *Agave obscura*, *Myrtillocactus geometrizns* and *Ferocactus histrix*. 2 - The author beside an *Agave obscura* on the edge of the Hoya Honda.
<table>
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<tr>
<th>FAMILY</th>
<th>GENUS/SPECIES</th>
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<td>Senecio praecox</td>
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<td>Agave lechuguiila Torr.</td>
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<td>Mammillaria magnimamma Haw.</td>
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# Table of comparison of the succulent species

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## Bibliography

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Allium potosiense.
Amaryllidaceae

1 - Zephyranthes fosteri
2 - Zephyranthes candida
3 - Zephyranthes longifolia

La Hoya craters region

La Hoya Chica

Zephyranthes fosteri.
Zephyranthes candida.
Zephyranthes longifolia.
Anacampserotaceae

1-3. *Anacampseros* coahuilensis.
La Hoya Chica

1. Male inflorescence of Calibanus hookeri.
2. Calibanus hookeri & Agave striata.
Asparagaceae

La Hoya Chica

1 - Yucca carnerosana, 2 - Dasylirion acrotiche, 3 - Agave asperrima ssp. potosina, 4 - Agave salmiana.
1. Yucca filifera, Agave gentryi & Opuntia leucotricha.
2. Agave obscura × lechuguilla.
3. Agave obscura.
4. Inflorescence with seeds of Agave obscura.
Asparagaceae

La Hoya craters region

1 - Calibanus hookeri, 2 - Nolina texana.
**Asteraceae**

1-2. *Senecio praecox.*

**Bromeliaceae**

*Viridantha tortillis.*
Cactaceae

1-2. Coryphantha georgii.

La Hoya craters region
La Hoya craters region
La Hoya Honda
La Hoya Chica
1 - Mammillaria aureilanata var. alba. 2 - M. aureilanata var. alba & Allium potosinum. 3 - M. aureilanata var. alba & Callisia navicularis. 4 - M. aureilanata var. alba & Callisia navicularis.
La Hoya Honda & La Hoya Chica

Myrtillocactus geometrizans.
1-3. *Pelecyphora aselliformis* is located sporadically on the edge of the crater.
1-2. *Thelocactus hexaedrophorus*, the form with appressed and curved spines.
1-3 - *Mammillaria crinita* var. *leucantha*, which is of rupicolous or arboreal form and grows very rarely on the ground.
1-2. *Ariocarpus retusus*, demonstrating its crypsis (the ability to avoid observation or detection by animals). 3. *Coryphantha delicata*. 

La Hoya craters region

La Hoya Chica

Summary
1-3 - Coryphantha echinoidea, sharing the habitat with: Thymophylla setifolia, T. pentachaeta, Corynopuntia perrita & Selaginella rupicola.
La Hoya craters region

Cactaceae

La Hoya Chica

1-3. Coryphantha sp. 4. C. glanduligera.
1 - *Echinocactus platyacanthus* and 2 - *Echinocactus horizonthalonius*, are less abundant species in the region.
La Hoya Chica

**Cactaceae**

La Hoya Chica

1. *Echinocereus pectinatus* with pollinators
Ferocactus histrix; in the area it grows mainly on the trees or on vertical cliffs.
La Hoya craters region

Cactaceae

La Hoya Chica

1- Mammillaria magnimamma. 2- M. decipiens. 3- M. uncinata. 4-5- M. formosa.
La Hoya Chica

Cactaceae

1-3 - Mammillaria tezontle.
1-3 - Phenotypic variability in *Stenocactus coptonogonus*.
1-3 - Phenotypic variability in *Stenocactus pentacanthus*. 

La Hoya craters region
summary

1. Senna wislizeni
2. Acanthothamnus subhillus
3. Callisia navicularis
4. Tradescantia potosina

La Hoya craters region
La Hoya Honda
La Hoya Chica

Caescalpiniaceae
Commelinaceae
Canotiaceae

La Hoya craters region
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La Hoya craters region

La Hoya Honda

Echeveria humilis

Echeveria bifida

Corynopuntia perrita

La Hoya Chica

summary

Crassulaceae
Crassulaceae

La Hoya craters region

1 - Echeveria lutea & Echinocactus texensis. 2-5 - E. lutea.
Crassulaceae

La Hoya Honda

1-5 - Sedum ebracteatum

La Hoya Chica

La Hoya craters region
La Hoya craters region

1. Sedum calcicola
2. Villadia aristata

Crassulaceae

La Hoya Honda

La Hoya Chica
summary

La Hoya Honda

Fabaceae

La Hoya craters region

Lamiaceae

Polemoniaceae

1 - Erythrina coralloides
2 - Poliomintha marifolia
3 - Clinopodium micromerizoides
4 - Giliastrum rigidulum
La Hoya Chica

NOTES
1. Feminin of the term “el hoyo”, “El Agujero” - meaning “The hole”
3. Carrasco et. al. 2004
4. Aranda et. al. 2000
5. Saucedo et. al. 2010
6. Greene & Butler 1979
7. Greene & Butler 1979
9. Saucedo et. al. 2010
10. Saucedo et. al. 2010
11. Nájera 2013
Myrmecodia beccarii Hook.f.
a pictorial appraisal including epiphytic companion species
part 3
from Yarrabah, South of Cairns, to the “southern form” habitat in the Hinchinbrook Channel swamps north of Townsville.

Living sufficiently high on trees can assist access to light, especially when compared to shaded forest floors; however, a related inability to access groundwater and its dissolved nutrients provides epiphytes with problems of supply. To ameliorate this constraint, most vascular tree-perching plants (other than most myrmecophyte species) prefer less stressful sites under appropriately leafy canopies.

Ecosystems intrinsic to forests, particularly moist, fertile ones, provide invaluable measures of shade, humidity, and steady sources of falling plant and animal materials that create arboreal humus accumulations, the “canopy soils” of biologists. These can measure decimetres thick on suitably inclined branches or tree forks.

Canopy soils also retain measures of rainwater and contain plant-essential fertilisers such as nitrogen and phosphorus that are often at higher levels than in depleted forest soils beneath.

However, mangrove forest soils are an exception to this rule, being rich in nutrients but here canopy soils are rare.

The Oak-leafed fern Drynaria quercifolia. This fern has dimorphic (two form) leaves; the brown, oak-like ones retain fallen debris, while the longer ones are its spore-bearing form. Both leaf types are produced annually but the fertile leaves are often lost during the dry season. Cairns mangrove walkway.

Yet the Oak-leafed fern Drynaria quercifolia avoids this lack by catching its own falling organics and with the help of varied resident detrivores, it creates its very own canopy soil. Various other life forms including ants also make their homes in these accumulations and all help to feed home plants via the catabolic breakdown their wastes.
Myrmecodia becarii “northern form” on a Paperbark tree in swampland. Below: It is probably a Buttercup orchid *Cymbidium madidum* in swampland. Yarrabah, south of Trinity Inlet, Cairns.
This small, isolated colony of stilted mangroves is only a few trees wide; thus, it is occupying a very narrow band of silica sand that surely creates a particularly hostile environment for any epiphytes. Certainly there was none other than a small colony of *M. beccarii* “northern form.” Yet, as we can see here, these are in excellent condition. 3-5 *Myrmecodia beccarii* “northern form” on stilted mangroves south of Trinity Inlet, Cairns.
Hinchinbrook Channel
habitat of the “southern form”

The Hinchinbrook Channel commences near Cardwell, 184 km. south of Cairns. Mosquitoes and biting sand flies can be horrendous here and one must be very wary of highly venomous snakes. Saltwater crocodiles are also of concern; channels capable of holding them are hidden by long grass until one is too near them.

The Paperbark Melaleuca tree here is much larger than its cohorts above are. Probably because it was growing on a small, better-drained hammock. Note the unusually long-stemmed example of *Myrmecodia becarii* “southern form”.
Onion orchids *Dendrobium tattonianum* were particularly common here, especially near the myrmecodias, but they were much rarer near *D. nummularia*. 
Myrmecodia becarii - southern form with Dendrobium tattonianum. Hinchinbrook Channel.
Splendid *Dendrobium tattonianum* on a Paperbark tree, Hinchinbrook Channel.
Myrmecodia beccarii "southern form". Even juvenile stages of this form have very few to no spines. Hinchinbrook Channel.
These are the highly invasive Big Headed ant species *Pheidole megacephala* Fabricius that are often replacing the co-evolved mutualist ant *Philidris cordata* F. Smith.
Dischidia nummularia. Because of this habitat's high insolation levels and seasonally harsh climate, examples here are particularly succulent. Note the baby Myrmecodia. Hinchinbrook Channel.
The following pages show a good selection of *Myrmecodia beccarii* "southern form". Often with *Di- schidium nummularia* and sometimes with *Dendrobium tatoonianum* in close proximity.

Note the myrmecodias are often pendent, have very little canopy cover and that very few other epiphyte species are able to survive in these seasonally very harsh conditions.
Some specimens of both *Myrmecodia* forms suffer from an affliction that creates severely distorted tubers as seen here. I have no information as to its cause.
Technical details.

Myrmecodia beccarii Hook. f. (Sir Joseph Dalton Hooker) was published in Curtis's Botanical Magazine, ser. 3, vol. 42, pl. 6837 (1886) (Bot. Mag.) based on a specimen collected on the Gulf of Carpentaria coast, the western side of Cape York Peninsula, North Queensland, Australia.
Although Banks & Solander found the original specimens in Queensland near the Endeavour River in 1770 during Captain James Cook’s famous voyage of HMS Endeavour, Solander’s manuscript and illustration that named this species as *Epidendroides tetranda* was never published.

Illustrations of Australian plants collected in 1770 during Captain Cook’s voyage round the world in H.M.S. Endeavour /by the Right Hon. Sir Joseph Banks and Daniel Solander, Plate 148. (1901.)

Illustration. http://www.biodiversitylibrary.org/page/10414535#page/91/mode/1up
Supporting notes. http://www.biodiversitylibrary.org/page/10414525#page/15/mode/1up
More background. http://biodiversitylibrary.org/page/8976437#page/208/mode/1up

Myrmecodia beccarii “southern form” in the Hinchinbrook Channel swamps.
As far as I am aware, there is no official record of any *M. beccarii* populations still existing along the Gulf of Carpentaria coast. However, entomologist Greg Daniels (pers. comm.) reports the presence of a white fruited *Myrmecodia*, which is almost certainly this species.
Postscript.
I again passed through Cairns in November 2015 and while there, I visited sites amply illustrated herein. I was shocked to find that the much-photographed specimens in the Cairns Botanical Gardens have gone. And the best were magnificent.

I am also aware that specimens being studied for an interesting ecological study of Cairns *M. becarii* were stolen. Indeed, the perpetrators even went back for a second round of thefts. Not only is such theft obnoxious, it also creates much strain for the researcher. Tertiary level studies are stressful enough without upsets caused by lowlifes like this. It is hoped that the perpetrators can be named and shamed.
Mammillaria pectinifera has always had a reputation of being a difficult plant to grow or keep alive in cultivation. In John Pilbeam’s 1999 *Mammillaria* book on page 214 we find some comments on the plant. "It is one of the most difficult to grow in cultivation." A few sentences later the reason is shown in the line saying: "The addition of some limestone chippings in the potting mixture (up to 50%) should help in cultivation, but in any case an open mixture with plenty of grit of similar material is essential." In England where Mr. Pilbeam lives a gritty soil may be necessary for the roots to dry soon enough but the adding of limestone is a no-no as far as I am concerned. I have stated many times that alkaline condition for growing is not good for the plants. The only time the plants grow in habitat is when it rains for the rain is acidic. As long as the water in the soil is still acidic the plants take it on but as the bicarbonate in the soil neutralizes the acidity the plants shut down again. On page 215 is a photo of *Mammillaria pectinifera* in habitat. There the plant is hardly showing above the limestone soil and it looks like the plant is quite covered with lime from the limestone. People try to emulate the conditions in the deserts where the plants grow; hot houses for heat and to protect the plants from winter rains and also to keep the plants warm. Another thing they do is to add lime to the soil mix or add limestone chips so the plants can have all the lime like in habitat. But the one thing they do not try to emulate is the acidic rain conditions and the nitrogen in the rain water. I am not sure how many times I have read that the plants should be given little to no nitrogen.

*Solisia pectinata*, 1905 collected plant by Dr. J. N. Rose, in Teohuacan.

Photo from N. L. Britton and A. N. Rose, *The Cactaceae* vol IV, pag 64.

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**Mammillaria pectinifera** F.A.C. Weber

Elton Roberts
The plant in photo 3 is 16 cm tall and 7 cm in diameter and coming along is a much smaller plant shown in photo 2 that is 6 cm tall and 5.5 cm in diameter. If these plants had been raised on alkaline water or had limestone added at the rate of 50% of the mix the plants would have died long time ago. In my alkaline years of watering I lost quite a few plants but since the plants are getting acidic water all of them look good. Photos 1 and 2 are of the same plant just showing it from a little different angle. Photo 1 is as it would look sitting on the bench and photo 2 is the plant from the side. At many shows I have seen people wanting a plant they pick up a plant and inspect it from eye level as seen in photo 2 and over head as in photo 1. The plants started growing really well as soon as I got rid of the limestone and alkaline water.

1 - 2. *M. pectinifera*, 6 cm tall and 5.5 cm in diameter. 3 - *M. pectinifera*, 16 cm tall and 7 cm in diameter.
Photo 4 shows the top of a plant in bud with several flowers open. As can be seen, the areoles are forced open by the forming buds. Many times there are several layers of buds and quite often there will be an entire ring of two of flowers as seen in Photo 11. Photo 5 is of the growing point and every time I look at the growing point it looks like many legged bugs trying to go down a hole. I say that because it looks like the spine clusters are going up the plant and not down it, and so like they are going in the plant instead of coming out of it.
The plant was first described in 1885 as *Pelecyphora pectinata* by B.A. Stein. In 1898 Weber gave it the name of *Mammillaria pectinifera*. In 1923 Britton and Rose renamed it to *Solisia pectinata*. The plant has also been tagged as *Pelecyphora aselli-formis var. pectinata* hort.

Today it is solidly named as *Mammillaria pectinifera* unless someone comes along and proves that it is something else.

**Description of Solisia in The Cactaceae by Britton and Rose 1923:**
Plants very small, solitary, globular, tuberculate, milky; tubercles not arranged in ribs, small, covered by broad pectinate spines; areoles very narrow and long; flowers lateral, yellow, small, borne in axils of old tubercles; axils of tubercles neither hairy nor woolly; fruit naked, small, oblong; seeds black smooth dome shaped with a broad basal hilum. Description of *Solisia pectinata* from the same book:
Plants 1 to 3 cm in diameter, fibrous-rooted, entirely hidden by large overlapping spine-clusters; areoles narrow and long; spines 20 to 40, all radial, 1.5 to 2 mm long, white, appressed; flowers small; fruit 6 mm long; seeds 1mm long.
Description of *Solisia pectinata* in *Die Cactaceae* by Backeberg 1966:

Body to 8 cm long, to 6 cm diameter, mostly set deeper in the soil; tubercles small, compressed above, truncate at the tip; areoles elongated; axils naked, spines to about 40, to 2 mm long, pure white or faintly reddish; flower about 2 cm long, 2.5 cm diameter, bell-shaped - funnel form, naked; petals yellowish-green; style white; stigma yellowish-green; fruit an elongated whitish berry; seed 1 mm long, boat shaped, black with a large hilum.

Anderson and Hunt as a little different of a description in their books:

Plants solitary; stems globose to short cylindrical, 1 - 3 cm in diameter; tubercles cylindrical, with latex, axils naked; areoles long, narrow; central spines absent; radial spines 20 - 40, pectinate, flattened against the body, white, 1.5 - 2 mm long; flowers white to pale pink with darker mid-veins, 20 - 30 mm long and diameter; fruits red, small, barely protruding above the spines; seeds black. Distribution: Puebla Mexico. I see there is a bit of difference in the descriptions, that is kind of normal for people see plants differently but some people rely on the descriptions given by other people without ever seeing the plant. I see in the New Cactus Lexicon is still a bit different description and here it is:

*M. pectinifera*, body simple, globose to short cylindrical, under 4 cm diameter, with latex; roots fibrous; axils naked; spines 20 - 40, under 5 mm, appressed, pectinate or radiating, white; flower 15 mm, yellow; fruit oblong, 6 mm; seed more or less circular, about 1 mm, black-brown, testa-cell boundaries raised with undulations.
Photos 6 and 7 are of the spine clusters on the plants. You may wonder why I show them in two photos; it is because they are different. In what way you may ask. The spine clusters and also the areoles on plant 6 are shorter than those on the plant in photo 7. I have not noticed this till I took the close up photos. Then looking close at the plants I saw for the first time that sure enough there is a difference in their length. I have three plants and two have the longer spine clusters and areoles. Now I come to a pet peeve and that is wrong spine counts. Being off by one or two spines would not bother me but when it is quite a few spines, it kind of irritates me.

Being off by say 1 to 3 [4] spines can be natural from plant to plant. I took several photos of each of the three plants trying to get photos where I could count the spine numbers and get a complete count. By several photos I mean from several different angles and four to six photos of each plant. I have Britton and Rose’s books The Cactaceae; and that is where I took the description of *Solisia* and the description of *Solisia pectinata* from. I have to wonder what plant they were looking at when they counted the spines. For they say that the plant has between 20 and 40 spines all radial. If you look at all the descriptions from Britton and Rose to the NCL note the spine count is 20 to 40 in each description. This shows me that they just copied it from book to book.
I have Reppenhagen’s Die Gattung Mammillaria Monography and I see that his book is the only one that did not copy the spine count. He says that the spine count it 35 to 60. That number 60 comes very close to the count I got from the three plants I have. I do not have a very small seedling to see what the spine count on them may be; for that is the only thing I can figure as to how the count of 20 to 40 spines came about.

That may not be the case either. Photo 6 is of the short areoles and spine clusters.

I counted as many clusters as I could see the entire cluster and here is the count of spines: 59, 68, 58, 64, 63, 63, 65, and 61.

Photo 7 is of the spines on the plant with the long areoles and spine clusters and here is the count: 62, 58, 76, 61, 75, 69, 61, 81, 69, 75, 62, 80, 76, and 74. I was trying to discover how all the descriptions come up with a count of 20 to 40 spines so I went out and took another five photos of my plant number 3 (not shown) and here is the spine count on that plant: 66, 59, 53, 71, 60, 59, 68, 62, 67 and 67. I am sure that my plants do not have extra high numbers of spines because they are growing very well. If someone is going up write about a plant and there is a question about the plant I would think they would want to check it out and not just copy what someone else wrote. When I looked at a spine cluster in Mammillaria pectinifera I had to right away question the number of spines, for there looked to be a lot more than the upper number of only 40 spines.
Notes on Mammillaria pectinifera

Photo 8 is looking into the face of a *Mammillaria pectinifera* flower. This is on my short areole plant when it was much smaller than it is in photo 1. The flower is 2.2 cm across on the day I took the photo. The upper half of each petal looks to be almost white with a pink mid-stripe. The center of the flower is shell pink. The filaments are also shell pink the style is also the same color and the stigma is pinkish cream in color. The anthers are pinkish yellow. In photo 9 the flowers have more pink to them and they are 3 cm in diameter. In photo 10 at first glance the flowers look to be white for there is a lot less pink. Looking close the pink mid-stripe can be seen most of the way to the base of the petals.

The filaments are pink but much lighter in color than those in photo 9. This is a double row of flowers which the plants put out, sometimes three times a season here at my place. Photo 10 is an overhead shot of the flowers on a plant showing the double row of flowers.

8 - *M. pectinifera*, flower of 2.2 cm. 9 - *M. pectinifera*, flower of 3 cm. 10 - *M. pectinifera*, a ring of flowers.
I have been growing the plants for many years and I myself have never seen a yellow flowering plant of *M. pectinifera* as stated is several of the descriptions. In the description by Britton and Rose of *Solisia* it says that the flowers are yellow and small, in their description of *Solisia pectinata* they only say the flower is small. Backeberg says that the flowers are greenish yellow. Anderson says that the flowers are white to pale pink with darker midveins. D. Hunt says in the New Cactus Lexicon that the flowers are 15 mm and yellow. In seeing the plants flower over the last 40 years the only color of flowers I have seen is the whitish to shell pink. Anderson’s description is, as far as I am concerned, the only correct one flower color wise. The NCL is really off for Hunt is or has to be, stating the size and color of *Mammillaria solisoides*. Anderson says that the flowers on *Mammillaria pectinifera* are 20 to 30 mm diameter and *M. solisoides* flowers are 14 mm long. The NCL says under the heading of *M. pectinifera* that the flower of *M. pectinifera* is 15 mm and yellow. Under ssp. *pectinifera* there is only the spine count of about 40; there is no mention of the flower. Under ssp. *solisoides* there is also no mention of the flower size or color, so the NCL is apparently classing *pectinifera* and *solisoides* as more or less the same plant with the same size and color of flower. Every *Mammillaria pectinifera* that I have ever seen flowering has flowers 2 to 3 cm in diameter and they are whitish to shell pink. I have gone on the web and typed in *Mammillaria pectinifera* and all the flowers on the plants are whitish to shell pink. But there are some yellow flowering plants shown but they are not *M. pectinifera* but *M. solisoides*.!

I keep the plants dry over the winter I have then in my regular soil mix. Since getting rid of the limestone and changing from alkaline water to acidic water the plants have grown very well. Give a good watering and then allow the soil to dry before watering again. I give the plants good light with a little shading for the afternoon heat. The white spines reflect most of the heat back away from the body and the bright light keeps the plants growing good with nice dense spines. The habitat of the plants is at about 6,200 feet (1,900 metres) elevation. I have not had any problems with the plants taking temperatures down to 35F (2C) as long as the soil is kept dry.
Notes on *Mammillaria pectinifera ssp. solisoides* in habitat, Salitrillo, Puebla.

**Xerophilia’s acknowledgements**
We want to thank Grzegorz Matuszewski, Luis Antonio Arias Medellín, Stefan Nitzschke and Vasile Plăcintar for helping us to complete the illustration of this article.

**Xerophilia’s notes**
(1) *Mammillaria solisoides* Backeb. was recombined in NCL as *Mammillaria pectinifera* F.A.C. Weber ssp. *solisoides* (Backeb.) D.R. Hunt. Although in NCL there is mentioned a habitat rift of 100 km between *M. solisoides* and *M. pectinifera*, although the seeds are similar, but “are very distinctive”, although it is shown that the areoles and tubular tubercles of *M. solisoides* are rather different from *M. pectinifera*, it is not concluded why the two taxa are ranked as different subspecies. On the other hand, errors in establishing the color of the flower, as described for *M. pectinifera*, are only increasing the confusion, which lasts from early descriptions of the two species.
Echinocereus aff. chaletii

in Baborigame

Echinocereus chaletii W.Rischer has not been recorded yet in the Mexican state of Chihuahua, so I present this series of photographs of this very similar plant under the name of Echinocereus aff. chaletii. It is noteworthy that a deeper research on the natural history of these plants is needed, to fully understand and determine its taxonomic status and its role in the ecosystem that it inhabits. Populations seem to be stable and protected from illegal collecting or destruction from humans, mainly due to the fact that not many people are aware of the presence of this cactus, nor its range; more, it grows on sharp steep rocks which are difficult to access.
Echinocereus aff. chalettii is a species of cactus that can be found deep inside the Sierra Madre Occidental in the State of Chihuahua, México, growing between the big trees that are a part of this rich and vast ecosystem. This species grows under the forest canopy or in direct sunlight in the rocks that stick out the vegetation. Pines, oaks, juniper, among other woody trees are found in this region. All of them allowing in one way or another, the survival of Echinocereus aff. chalettii.
Flowering takes place in the spring months (April-May) when temperatures are rising in this region characterized for having really cold temperatures in winter, which indicates that *Echinocereus* aff. *chaletii* is really tolerant to cold, even snow and freezing temperatures. These beautiful cacti are able to grow in the shade of the trees, or in open spaces with direct sunlight, where it is most commonly found, growing in the cracks or tops of big rocks that provide suitable substrate for them.
Echinocereus aff. chalettii with first buds of the year and a big flowering colony (below).

Flowers are of an intense red color, or can have orange tones to them, since big groups or colonies seem to be the common deal, multiple flowers may be encountered at once, during the flowering season.

Panoramic view of the habitat.
Echinocereus aff. chaletti, growing under full sun exposure on a rocky crevice; plants are more compact.

Echinocereus aff. chaletti shares its habitat and range with some other interesting cacti and succulents, such as: Mammillaria senilis, Mammillaria montensis, Echinocereus scheeri, Echeveria chihuahuensis, Sedum sp, among others. Often they can be found growing side by side, since some of these species share the taste for the same rocky habitats.
Another observable and associated element growing with these cacti is the moss, which forms big colonies in the rocks that Echinocereus aff. chalettii is using as its niche. Moss helps retaining humidity in the very thin soil crust and provides nutrients and organic material for cacti.

These woods are also a stunning home for various fauna, and no doubt the rattlesnakes found here are stunningly beautiful. These small twin spotted rattlesnake (Crotalus pricei) shares its home with all of these cacti, and can be seen basking in the mornings on the side of the cacti in the rocks.

Otro elemento que podemos observar en repetidas ocasiones es el musgo asociado a las rocas donde crecen las plantas, ayuda a mantener la humedad y proporciona nutrientes y material orgánico que la planta necesita para crecer.

Éstos bosques también son hogar de una gran diversidad de fauna, entre las que sin duda destaca las serpientes de cascabel, como ésta pequeña cascabel de manchas gemelas (Crotalus pricei).
Weather in this region is temperate, with a rainy season in summer, but also rain in winter, ice and snow. The altitudinal range for the species goes easily over 2000 masl and they can withstand the low temperatures of the mountainous regions.
Erected stems of colony of an old Echinocereus aff. chaletii.

Spines are soft at touch and even though the stem is strongly covered by them, they’re not particularly strong. They just borrow the plant this tranquil look.
Echinocereus aff. chaletii, growing under full sun on a stony slope.

We can see the plants growing in the organic material accumulated in the rocks through time, where roots grasp to the rock, and at the same time allowing more organic matter and humidity to settle and nourish the plants.

Growth of new spines in the apical zone, note the light yellow color of the new spines.
*Echinocereus* aff. *chaletii*, growing under the forest shade on rocks covered with a very organic soil.

The adults can reach up to 30 cm in length or more, changing shape as they grow and can be chandelier shaped or hang from the rocks where they grow, but you always see them in groups or colonies.
Multiple flower buds make sure a multitude of flowers are produced. It is still unknown if this species can hybridize with its closest relative *Echinocereus scheeri*.

Local people usually call this cactus and also some other cacti “Biznagas”. There is no known use for the local community for this cactus and for other cacti growing in the forest. However other bigger columnar cacti, such as *Pachycereus* and *Stenocereus*, which are found in the lower canyons, are used for food (the fruits) or for building materials.
Echinocereus aff. chalettii is taking advantage in all rocky hole, corner or crevice with fertile soil.

Large bell shaped flowers, characteristic of Echinocereus, are pollinated by different species of bees.

CONCLUSION:
The remote sierras and big canyons in Chihuahua still offer new discoveries to science or for those who adventure to explore them, doubtlessly there are some hidden jewels still waiting to be found in these really rich ecosystems. More research is needed in order to have a better understanding of the nature, or of this and other similar cacti found in those sierras; however, instability caused by drug-lords in the region makes it hard to access and to explore especially for foreigners and sometimes even for local people.
Sedum burrito

the succulent from nowhere

Marco Cristini

A succulent hobgoblin stalks throughout Veracruz; it’s the ghost of Sedum burrito! This fascinating species was described by Reid Moran in 1977 and since then it has become popular worldwide, but its natural habitat is still shrouded in mystery. This article will tell the tale of this interesting and enigmatic plant, which often adorns our collections, but it’s rarely the subject of papers in succulent journals.

Its official history begins in 1970, when Fred Boutin and Myron Kimnach found the would-be Sedum burrito in a nursery in Guadalajara. The nurseryman told them that the plant had come from another nursery, so its whereabouts in the wild remained utterly unknown.

Monaco, Jardin Exotique de Monaco, Sedum burrito shaded by tall cactus.
**Sedum burrito**'s descriptions

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td><strong>name</strong></td>
<td><strong>Sedum burrito</strong></td>
<td><strong>Sedum burrito</strong></td>
<td><strong>Sedum burrito</strong></td>
<td><strong>S. burrito Moran</strong></td>
</tr>
<tr>
<td><strong>type</strong></td>
<td>Typus: P. C. Hutchison 1328A (SD 97022).</td>
<td>no conocida; Hutchison 1328A, junio 1977 (SD).</td>
<td>no locality is known.</td>
<td>Mexico, Veracruz (Hutchison 1328A [SD 97022]).</td>
</tr>
<tr>
<td><strong>distribution</strong></td>
<td>bought by Barry Coats in Coatepec, Veracruz, Mexico, in 1972; said to be from Mount Orizaba.</td>
<td>no locality is known.</td>
<td>Veracruz. Cultivada en Coatepec.</td>
<td>Mexico (Veracruz).</td>
</tr>
<tr>
<td><strong>habit</strong></td>
<td>caules pendentes ad 5 dm longi 3-5 mm crassi dense foliati.</td>
<td>planta glabra</td>
<td>glabrous perennial herbs.</td>
<td></td>
</tr>
<tr>
<td><strong>stems</strong></td>
<td>the stem-with-leaves 2-3.5 cm thick, the in tern odes averaging ca. 0.7-1.7 (-2.5) mm, the surface divided by low ridges into areas each conforming above to outline of leaf base but extending ca. twice as far below, the attachment scars oval, ca. 1 mm wide, projecting slightly, each with one vascular bundle.</td>
<td>pendulous</td>
<td>tallos ramificados desde la base, al principio erectos, después colgantes, hasta 5 dm de largo.</td>
<td>stems branching freely near the base, first erect, then pendent, glaucous-green, 50 cm long or more.</td>
</tr>
<tr>
<td><strong>leaves</strong></td>
<td>foliis patentibus glaucis turgidis ellipticis obtusis 12-16 mm longis.</td>
<td>imbricate, glaucous-gray, very blunt 2.5-cm (1-in) long leaves</td>
<td>habitualmente amontonadas, más o menos perpendiculares al tallo, ellipticas, obtusas, de 12-16 mm de largo por 6-9 mm de ancho, glaucas, azules.</td>
<td>crowded, in 5 obvious spirals, elliptic, obtuse, turgid, suberect, bluish-glaucous, 12 - 16 x 6 – 9 mm, 5 - 7 mm thick.</td>
</tr>
<tr>
<td><strong>branches</strong></td>
<td>leaves crowded to slightly separated, in 5 obvious spirals, ± perpendicular to stem at maturity, bluish glaucous, turgid, elliptic, obtuse, 12-16 mm long, 6-9 mm wide, 5-7 mm thick, convex ventrally, rounded dorsally, the margins broadly obtuse, almost rounded, the base shortly terete, ca. 3 mm thick, contracted to narrow attachment.</td>
<td></td>
<td>crowded, in 5 obvious spirals, elliptic, obtuse, turgid, suberect, bluish-glaucous, 12 - 16 x 6 – 9 mm, 5 - 7 mm thick.</td>
<td></td>
</tr>
<tr>
<td><strong>inflorescences</strong></td>
<td>cyma corymbosa 10-30 florata, ramis 3-6 confertis uniparis.</td>
<td>terminal en cima con 10-30 flores [...] Uhl (1980) señala que la mayoría de las inflorescencias son laterales, las observadas opr Meyrán son terminales.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>flowers</strong></td>
<td>wine-red flowers appear in spring and hang on long pedicels from stem tips.</td>
<td></td>
<td></td>
<td>5-merous.</td>
</tr>
<tr>
<td>pedicels</td>
<td>pedicellis 8-12mm longis.</td>
<td>8-12 mm long, slightly thickened upward, 1.5-2 mm thick.</td>
<td>8-12 mm de largo, ligeramente engrosados hacia arriba, 1.5-2 mm de espesor.</td>
<td></td>
</tr>
<tr>
<td>calyx</td>
<td>calyce segmenta ovata 2-5 mm longa.</td>
<td>cupshaped, 5-7 mm long, 6-8mm wide, rounded to subumbilicate below, grooved to base below sinuses, the segments erect, slightly imbricate at base, unequal by as much as 1 mm, triangular-ovate, subacute to obtuse, unequally connate to ca. 1 mm, the free part 2-5 mm long, 3-3.5 mm wide, 1-1.5 mm thick, slightly concave ventrally, convex dorsally, the margins acute.</td>
<td>de 8-12 mm de largo. ligeramente engrosados hacia arriba.</td>
<td></td>
</tr>
<tr>
<td>sepals</td>
<td>even and deltoid.</td>
<td>triangular-ovados, subagudos a obtusos, erectos, de 2-5 mm de largo.</td>
<td>broadly sessile, connate, unequal, triangular-ovate, subacute to obtuse, 5 - 7 x 6 - 8 mm.</td>
<td></td>
</tr>
<tr>
<td>corolla</td>
<td>in bud ovoid, obtuse, in anthesis narrowly campanulate, pentagonal.</td>
<td>petala erecta rosea ovata 7-8 mm longa, apice rotundata subcucullata dorsilaterque valde apiculata.</td>
<td>Petalo ereto rosa ovoides de 7-8 mm de largo, ápice redondeado subcucullado dorsalmente y ventralmente profundamente apiculado.</td>
<td></td>
</tr>
<tr>
<td>petals</td>
<td>erect, slightly incurved in upper fourth, imbricate, connate ca. 1 mm, pink, dorsally deeper pink on margins, ventrally closely marked with irregularly confluent short deeper pink longitudinal lines, ovate, narrowly rounded and subcucullate, subdorsally mucronate, 7-8 mm long, 3.75-5 mm wide.</td>
<td>Pink, erect, slightly incurved in upper fourth, imbricate, connate ca. 1 mm, pink, dorsally deeper pink on margins, ventrally closely marked with irregularly confluent short deeper pink longitudinal lines, ovate, narrowly rounded and subcucullate, subdorsally mucronate, 7-8 mm long, 3.75-5 mm wide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>filaments</td>
<td>deep pink, 1.5-1.8 mm wide, 0.3-0.4 mm high, 0.3-0.4 mm thick.</td>
<td>rosa oscuro.</td>
<td>broad, emarginate, deep pink.</td>
<td></td>
</tr>
<tr>
<td>nectaries</td>
<td>light yellow, oval, ca. 1.2 mm long.</td>
<td>light yellow.</td>
<td>light yellow.</td>
<td></td>
</tr>
<tr>
<td>anthers</td>
<td>deep pink, 6.5-7 mm high, 3.5-4 mm thick.</td>
<td>Deep pink.</td>
<td>Deep pink.</td>
<td></td>
</tr>
<tr>
<td>gynoecium</td>
<td>keeled dorsally, tapering gradually into styles.</td>
<td>ca. 55, oblong, 0.45 x 0.2 mm.</td>
<td>ca. 55, oblong, 0.45 x 0.2 mm.</td>
<td></td>
</tr>
<tr>
<td>carpels</td>
<td>ca. 2-2.5mm long.</td>
<td>ca. 2-2.5mm long.</td>
<td>ca. 2-2.5mm long.</td>
<td></td>
</tr>
<tr>
<td>ovaries</td>
<td>ca. 55, oblong, 0.45 x 0.2 mm.</td>
<td>ca. 55, oblong, 0.45 x 0.2 mm.</td>
<td>ca. 55, oblong, 0.45 x 0.2 mm.</td>
<td></td>
</tr>
<tr>
<td>ovules</td>
<td>n = 34 + 1.</td>
<td>n = 34, 35.</td>
<td>2n = 69.</td>
<td></td>
</tr>
</tbody>
</table>
Two years later Barry Coats brought Paul Hutchison the same succulent, said to be from Mount Orizaba. He purchased the plant in Coatepec, Veracruz (MORAN 1977) and it was very similar to another elusive succulent found in the same town, *Sedum morganianum*, which was discovered by Eric Walther in 1935. The history of these two succulents is very similar: both are attractive and easy to grow, both spread quickly among collectors, both were found in a nursery and not in habitat. But *Sedum morganianum*, after seven decades of unconfirmed sightings and rumors, was finally found in February 2008 by David Jimeno and Amparo Albala at Bellreguard Ranch (Municipio de Tenampa, Veracruz, see CHÁZARO 2011), while the habitat of *Sedum burrito* is still unknown.

*S. burrito* gained very soon a well-deserved popularity. In 1976, one year before being officially described, it was distributed by International Succulent Introductions (Plant Introductions of the Huntington Botanical Gardens - ISI 985) from "plants obtained by Boutin and Kimnach (#3221) in Feb. 1970 at a nursery in Guadalajara, Jalisco, Mexico" (CSJ 48(2): 45). The succulent's status was still unclear; it was thought to be "a hybrid or a natural variant of *S. morganianum*".
The following year Reid Moran described the species on the Cactus and Succulent Journal. He decided to call it *Sedum burrito* because Paul Hutchison had already distributed the succulent for a few years under the name “burrito”, meaning “little donkey”. The name is not very Latin (JANKALSKI 1991 speaks of a “whimsy”; I agree...), but it’s taxonomically acceptable. Reid Moran observed the strong similarities between *S. burrito* and *S. morganianum*, but he noted that the former’s leaves are shorter, straight and obtuse, whereas the latter’s are longer, curved and acute. Also the flowers show significant differences, so *Sedum burrito* was granted the status of species (MORAN 1977).
In 1980 Charles Uhl studied the cytology of a few Mexican sedums, among them also *S. burrito* and *S. morganianum*. Uhl concluded that both have 35 chromosomal elements, although study of field collected material would be necessary to determine without doubts the normal chromosome numbers of *S. burrito* (UHL 1980). It’s not a surprise reading that these two species “may have evolved from the same ancestral stock” (UHL 1980), but it’s very interesting that Uhl established a relationship with *Sedum palmeri* and *Sedum obcordatum*. In fact they are apparently very different plants from *S. burrito* and *S. morganianum*, but the cytology (1) tells another story.

Since Uhl’s paper little has been written about *S. burrito* and no one has found its habitat yet, but it would be really interesting to know how many people have been looking for it in the meantime... Barry Coats purchased the plant in Coatepec, where also *Sedum morganianum* was discovered, so one could conclude that the plant grows nearby, but Fred Boutin and Myron Kimnach discovered it initially in a nursery in Guadalajara, some 800 km from Coatepec and this is quite puzzling. Surely one nurseryman could have bought the plant near Coatepec and brought it to Guadalajara, but it could also be the opposite. Another possibility is that the plant could have been spreading among nurseries and collectors in Mexico well before Boutin, Kimnach and Coats found it, so the place of their discovery has only a limited significance in order to understand the habitat of *S. burrito*.
Reid Moran writes that Coats' plant is "said to be from Mount Orizaba" (MORAN 1977), but he didn't say whence this information came. Did a nurseryman tell it to Barry Coats? Did he buy the succulent in a nursery? Did he obtain it from a local gardener or a collector?

Until someone goes to Mexico and looks for the plant, it’s only possible to guess. It’s a striking coincidence, in my opinion, that *S. burrito* and *S. morganianum* were found in the same town, so I’d say that the chances of discovering our elusive succulent in the wild are higher between Coatepec, Mount Orizaba and Tenampa.

After this long discussion about *Sedum burrito* unknown habitat, let’s have a look at this intriguing plant. *S. burrito* is a glabrous succulent whose stems branch freely near the base and soon become pendent. Its elliptic, subterete and glaucous leaves are 10-15 mm long, 4-7 mm large and 3-6 mm thick. These measures are only indicative, because the same plant can develop bigger leaves if grown in a shady place with abundance of water or smaller leaves if kept in a sunny and dry spot.
Moran writes that the leaves of plants examined by him were “12-16 mm long, 6-9 mm wide, 5-7 mm thick” (MORAN 1977) and thirty years later Henk ‘t Hart and Bert Bleij wrote that the leaves are “12-16 x 6-9 mm, 5-7 mm thick” (T HART & BLEIJ 2003). In the same year also Jorge Meyrán García and Lylán López Chávez gave these measures (“12-16 mm de largo por 6-9 mm de ancho”, MEYRÁN & LÓPEZ 2003), transcribing another time Moran’s first description.

I have been cultivating this succulent for a few years and, as I said, I’ve seen both bigger and smaller leaves. Ray Stephenson, for example, writes that leaves can be 25 mm long (STEPHENSON 1994). Moran (followed by T HART & BLEIJ 2003) states that on each stem there are 5 obvious spirals, which I observed, are more easily recognizable on specimens grown in sunny places.

The stems of S. burrito can become very long. Moran says they can grow “5 dm or more” (MORAN 1977); ‘t Hart and Bleij (“50 cm long or more”, T HART & BLEIJ 2003) and Meyrán and López (“hasta 5 dm de largo”, MEYRÁN & LÓPEZ 2003) agree. On the other hand, Zdenek Jeiek and Libor Kunte say that a plant can grow more than a meter long (JEIEK & KUNTE 2006). When I wrote this article (December 2015) I had a plant with 56-57 cm long stems. L. have been growing since December, 2008, so for seven years. If the reader does a little math, he or she will see that my S. burrito has been growing at an average “speed” of 8 cm per year, whereas its “big brother” Sedum morganianum grows on average 20-30 cm per year in my collection. Well, Sedum burrito is not a Formula One car, but nobody can be impressed by its quick growth either...
I have never been able to observe S. burrito flowers on my plants. I don't know the reasons of this shyness, but I suspect that the succulent needs much light and cool winter temperatures in order to bloom (fearing frosts, I keep my plants inside from November to March). According to Moran, the inflorescence is "a corymbose cyme of ca. 10-30 flowers". The petals are "erect, slightly incurved in upper fourth, imbricate, connate ca. 1 mm, pink, dorsally deeper pink on margins, ventrally closely marked with irregularly confluent short deeper pink or atjunal lines, ovate, narrowly rounded and succulente. Subdorsally mucronate, 7.8 mm long, 3.755 mm wide". Filaments are 6 mm long, anthers 5-7 mm (MORAN 1977).

As far as cultivation is concerned, this succulent is very easy to grow. It thrives both in shady and sunny spots and withstands well dampness and drought. My plants are happier if I water them also in winter every one-two weeks, otherwise their growth slows down. Ray Stephenson writes that "this is the best Sedum for a hanging basket, even better than S. morganianum as it has more compact 'tails', which if knocked, do not discard leaves". My Sedum burrito discards leaves if knocked, but it's actually more knock-resistant than S. morganianum. I cultivate both in hanging baskets, which are surely more beautiful, and in square pots, which are much more practical. In fact plants in hanging baskets, if kept outside, are easily damaged by wind, birds and reckless humans. Moreover, S. burrito is slow in filling up its pot (as writes STEPHENSON 1994), surely slower than S. morganianum.
This succulent can withstand light frosts if perfectly dry (STEPHENSON 1988), but I wouldn’t risk keeping a well grown plant outside in winter. Heat can be a real problem for Sedum morganianum, as in July 2015 my plant lost lots of leaves due to high temperatures, but in the same days S. burrito was perfectly well, so under this aspect it’s tougher than its relative.

As said before, I water this succulent also in winter, but it depends on temperature and light. If you try to keep this plant outside or in an unheated greenhouse, it’s surely better to avoid watering. On the other hand, S. burrito should be watered once-twice a week in summer, especially when it’s hot.

Personally, I’m not a fan of fertilizer, so I use it sparingly. I usually fertilize all my succulents lightly only once a year, in February-March. Maybe my plants grow faster if I would use more fertilizer, but I prefer not to. However, every collector can try and see what happens.

Propagation is easy, S. burrito grows from stem and leaf cuttings. Leaves root quickly, but new plants grow slowly, so it’s more practical to cut a few young stems and start with them a new pot.

Fortunately, pests are not attracted by S. burrito. Once I found a few mealy-bugs on very young plants growing from leaves, but they never attack bigger specimens. Aphids and scale insects (until now) have been carefully avoiding my Sedum burrito and I’m very happy of it. In fact picking the insects off one by one among imbricate and readily detachable leaves wouldn’t be an easy game...
This nice succulent has been used quite often to create hybrids. Ben Zonneveld has made the following crossings: 

- **S. morganianum** × **S. burrito**
- **S. burrito** × **S. morganianum**
- **S. burrito** × **S. allantoides ‘Goldii’**
- **S. burrito** × **Graptopetalum amethystinum**
- **S. burrito** × **S. treleasei** (ZONNEVELD 1993). Charles Uhl has successfully produced hybrids of **S. burrito** with **S. lucidum**, **Graptopetalum fructicosum** and **Pachyphytum hookeri** (UHL 1980). Ray Stephenson wrote about “a spontaneous hybrid with **S. potosinum**” (STEPHENSON 1993) and in 2010 he described Sedum ‘Canny Hinny’, a nice cross with **S. clavatum** (STEPHENSON 2010). I have been cultivating it for a few years and I’ve observed that, like its chubby parent, also this hybrid grows slowly.

Concluding, **Sedum burrito** is a charming and mysterious succulent. Its habitat, somewhere in Veracruz, has so far eluded collectors and botanists, but this is of little interest for thousands of people who cultivate it in every country. Maybe **S. burrito** hasn’t officially the Mexican citizenship, but its popularity and its beauty have by now conferred on it the world citizenship.
Acknowledgements

I'd like to thank Ray Stephenson, who kindly gave me a few cuttings of Sedum ‘Canny Hinny’, and Roy Mottram, who helped me clarifying the taxonomy of S. burrito.

Zurich, Sukkulentensammlung, hanging baskets of Sedum burrito.

Bibliography

Cactus & Succulent Journal 48(2): 93 (breve descrizione delle piante offerte dall'I.S.I. con foto in bianco e nero).


Travelling across Rangitoto Island is not only challenging, but often comes with complete unexpected results. And sometimes the unanticipated accomplishments have little in common with the immediate searches and re-searches. It all started in September 2012 when I found on the neighbouring Motutapu Island, just across 100 metres from Rangitoto, immediately north of Islington Bay wharf, the intergeneric hybrid ×Carpophyma mutabile Heenan & Sykes. A very interesting found near eastern Rangitoto of which I wrote in Xerophilia a short note about (link). One of the parents, Carpobrotus edulis (L.) N.E.Br., was only few metres away, but where was the other one, the native Disphyma australe (Sol. ex G.Forst.) N.E.Br.? I simply wanted to see a Disphyma N.E.Br. population nearby or at least find one on Rangitoto. Although common in rocky coast habitats and abundantly present on other Hauraki Gulf Islands, there were only very few records of this species on Rangitoto and I also couldn’t find any during all my travels there.
Only few references
Records are only a few. Sykes (1992) is very vague: “Represented by a single specimen from Rangitoto. Although collected many years ago it probably still occurs there” and indicating it's been collected in 1920 possibly around Rangitoto wharf in the south.

Wilcox (2007) presents a picture of a white flowering specimen dated 2005, maintaining that it “can often be seen on shell banks adjoining the Coastal Track” – also in the south, the only place you can see the sea directly from the track. Few years early, Stanley & al. (1998) made a quite uncertain mention of what they think it could have been “occasional patches or individuals of (…)
perhaps Disphyma×Carpobrotus hybrid” in the northern parts on Rangitoto, somewhere between Boulder Bay and McKenzie Bay, however, without indicating the presence of their parents. More, the word “perhaps” used in their article sounds rather quite unsure as ×Carpophyma mutabilis is easy to distinguish by the complete absence of fruits and (when in flower) by the somewhat larger flowers compared to Disphyma australe. This has to be confirmed by new founds, of course, but in my opinion I take they have seen just a patches of Disphyma australe. However, the inconclusive location makes its placement possibly too far from our Motutapu hybrid population. And the southern plants even farther…
By February 2015 when I published The succulent flora of Rangitoto Island (Zimer, 2015) (Link here) I wasn’t able to locate Disphyma on Rangitoto. However, just when I gave up the search, I found, by chance, no less than three different locations in October 2015 and January 2016.

1. ×Caprophyma mutabilis, lush growth, Motutapu.
2. ×Caprophyma mutabilis, Motutapu.
3. ×Caprophyma mutabilis with no fruits crop, Motutapu.
First found on the southern promenade

Typically – my first found was where I was looking the least: on the southern promenade. It is virtually an empty grassy space (a mowed lawn!) between the Islington Bay Road and the sea, where only halophyte and non-descriptive species such as Sarcocornia quinqueflora, Suaeda novae-zelandiae and Tetragonia spp. coexist... it’s just 20-30 metres wide and few hundred meters long lawn strip in an area you are not really interested to see. If you go east in the morning, you have some plans in your mind, when you return you are mostly too tired and happy that you didn't miss the last ferry... so, there's no point in watching closely every spot around the southern wharf. However, in October 2015, on the way back from Islington at the end of the day, I saw a wonderful flowering Aloe maculata at the end of the lawn and a made few steps on the lawn across, to take a picture. What a surprise when I noticed the somewhat hidden flowers of Disphyma australe!

Few scattered plants only, not even forming a continuous mat, white flowering and having well turgid leaves because of the very wet spring. The location was quite a surprise – no traces on the shore rocks, however, forming a group of 5-6 metres length and 2-3 metres wide on a very flat, sandy but rather tough soil, with serious traces of sediments. A very untypical substrate. Smallish pure white flowers, as in the true species, only 3-4 centimetres wide. I spent some time scanning the entire potential strip, but this was the only Disphyma population seen.
West of Rangitoto wharf

In January 2016 I returned quite early to the southern wharf from my trip in the eastern parts of the island and decided to have some short walks around during the hour left to the last ferry. I was walking west of the wharf, just looking in different corners for plants.

On a rock, very close to the water, a couple of young *Disphyma australe* hanging on the northern side, opposed to the sea. Definitely it was very exposed to the sea and the breeze, as it usually grows. I could not see any fruits, but judging by the stem colour it should have been the white flowering form as well. I had a closer look of the coastal rocks some 100 metres up and down, but I couldn’t see any other *Disphyma*. The only problem here is that the shore line is too low to accommodate the plant.
The big surprise

The vegetation on Rangitoto is so diverse and with so many eco-microclimatic pockets hidden in corners you would not believe, that it takes time and attention to capture every detail you are interested in. It requires both patience and a high level of knowledge accumulated over time. Plus trained eyes and binoculars, and definitely some good luck.

I have been sixteen times on Rangitoto to date, and walked for tens of times on the path next to Yankee wharf... but there still was something unexpected in a corner: yes, a clump of *Disphyma australis*!

Once again, in a very odd place I have never looked after plants – in the shadow of an old and damaged boatshed, very close to the waterline. And, very interesting, almost opposite the Motutapu location where I found *Carpophyma mutabilis* three and a half years before! Maybe in 200-250 metres distance in straight line, so definitely a bee flight away! I couldn't believe my eyes.
However, the location is very unusual, placed in the southwest corner of the shed where it gets little to no direct sunlight at all. Big parts of this dense 40-50 cm mat grow very lush, uncharacteristic for the species. In some area, around one of the margins, the leaves are smaller as the plant gets probably some direct sunlight. In the same area several seed pods are formed. Now, I wonder how I couldn’t see the flowers in springtime!
Finally, I have found Disphyma australe just across the isolated hybrid xCarpophyma mutabilis on Motutapu. There is no doubt on the true species, as seed pods were present. It is close enough to the Carpobrotus edulis plants to hybridise. However, I still need to see its flowers next spring (September-October). The xCarpophyma mutabilis flowers are almost white (so they appear in pictures), but seen directly the flowers have a light pinkish touch that cannot be reproduced in photographic material in very strong light with the equipment I have. By all appearances the Disphyma australıe seen in Islington should have white flowers as well, and here we have a problem... where comes the pinkish touch of the xCarpophypha flowers from?

On the other hand, back crossing from xCarpophyma to Disphyma could have been possible anyway... and, as a result, its flowers have to be analysed and measured as correctly as possible, and the same for the vegetative parts of the plant. A task for the coming spring I guess. Not really easy to achieve as I need to see them all in flower, to have low tide at noon for crossing the channel by foot, to have good weather and only few weekends to choose from. And work quickly so I don’t lose the last ferry.

Literature:
When I got to the (hopefully) past winter break devoting myself to study, among other things, the existing travel records of Fittkau, Buchenau and Krähenbühl, I also took a fancy for a few old slides of the Weekend Getaways from 1995 in the part south of Mexico City, which I only very carelessly had travelled.
After reviewing and editing the slides, I decided to publish here a few pictures of *Mammillaria heidiae* rarely seen at the site. The plants were not really rare, but then often very difficult to find at the type location in El Papayo in the state of Puebla. The species was discovered in the 1970s by Heidi Krähenbühl, the wife of the Swiss cactus connoisseur Felix Krähenbühl on a journey they made together, and described in 1975 by Hans Krainz, the former head of the Succulent Plant Collection Zurich and publisher of the loose-leaf collection Die Kakteen.
In memoriam
Rudolf Grym
01. 08. 1946 – 06. 08. 2015

In memoriam Rudolf Grym

It's been almost a year since our friend Rudy Grym passed away. We knew each other for decades; we felt that it was like forever. Initially, it was only contact through the articles that he wrote, back then mostly about his *Lophophora* cacti (his enthusiasm for genus *Bursera* came later). Later, we then met at cacti meetings, celebrations of various anniversaries of our friends and our own - Rudy was always the one who attracted people to him, making everyone feel that wherever he is, there will always be a good mood around.

Roman Staník, Lux Ali & Rudolf Grym

Ing. Rudolf Grym (1. 8. 1946 – 6. 8. 2015)
It’s been almost a year since our friend Rudy Grym passed away.
We knew each other for decades; we felt that it was like forever. Initially, it was only contact through the articles that he wrote, back then mostly about his *Lophophora* cacti (his enthusiasm for genus *Bursera* came later). Later, we then met at cacti meetings, celebrations of various anniversaries of our friends and our own - Rudy was always the one who attracted people to him, making everyone feel that wherever he is, there will always be a good mood around.
However, when it came to more serious work, all irrelevant was put aside and he concentrated on the target - we had the opportunity to work with him on his books which were devoted to the genus *Lophophora* on two different occasions, coincidentally, the second book only came out only a year before his departure forever.

His passion for growing cacti, especially *Lophophora*, and later also *Bursera*, emerged from his love of the nature itself - he used to hike and thanks to his father, also a well-known cacti professional, he got the gene for our favorite plants, which accompanied him until his passing.
Rudy Grym devoted cacti much of his time, he not only wrote about them, but he especially grew them. It was because of this that he has left an inerasable mark not only in literature, but also to others around him. He was able to show too many that even someone from our geographical area, when they follow their dreams, they can accomplish much.

His masterpiece became the book *The genus Lophophora*, but he will always have hundreds little memorials in the minds of his friends, not only his native ones from Czech Republic but also in Slovakia, Poland or Germany, as well as in the far Mexico. We think of him whenever we meet at a symposium or other cacti gathering - and we wait in vain for his contributions to the debates.
There will always be something mysterious and fascinating about the genus Lophophora. This well-produced book appears to present a thorough review of the genus. Most of the text is in Czech, but there also is an English text summary, dealing with the five accepted species:

- Lophophora williamsii
- Lophophora diffusa
- Lophophora fricii
- Lophophora koehresii
- Lophophora alberto-vojtechii

The illustrations of plants in habitat and cultivation are of a consistently high standard and show many amazing plants. A well-known specialist on the genus Lophophora, the Czech author Rudolf Grym (1946 – 2015), has written this new book (the latest) dedicated entirely to this genus. His first book from 1997 is long out of print. Many things have changed in regard to the knowledge of the genus since those times, including the description of a new Lophophora species.

This new book is not a supplement nor a correction to the earlier version, but it is an entirely new piece of work. It will become essential reading for growers of this soughtafter genus for many years to come. Published in Czech, includes an extensive English summary. The contents include: Introduction; History of the genus Lophophora; Introduction to individual species; Unidentified species, The genus Lophophora in habitat; A.V. Fric and the genus Lophophora; Invalid names; List of published names and Literature references.

The book has 120 pages in A4 format and is hardbound. It is printed on good quality matt art paper and is in full colour (exception only for the historic photographs). The text is complimented with over 250 photographs, mainly from habitat, however, it also includes unique historic reprints, pen drawings and an extensive listing of recommended reading. The authors of the photographs are well-known European travellers.

Price per copy - £19 + £11.60 p&p. All orders will be confirmed by email, with payment information (via PayPal, pls) contained within.
To order, please email: igor.drab@gmail.com
Online magazines

**Succulentopii@** (French) - Quarterly online magazine of the Cactus Francophone. Latest issue: No 15, November 2015. There was no new issue from our last presentation.

**Sukkulenten** (German) - Monthly free online journal of the FGaS - Fachgesellschaft andere Sukkulenten (formerly Avonia-News). Latest issue: Vol. 9, No 1, March 2016.

**The Cactus Explorer** (English) - the first free online C&S journal. Latest issue: No 15, February 2016.

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**ABSTRACT - scurtă prezentare a articolelor**

**Pedro Nájera Quezada**

**Flora xerofită din regiunea craterelor “La Hoya”**

Tehnic și la obiect, colegul nostru prezintă un pictorial comparativ al principalelor elemente floristice xerofite din zona craterelor “La Hoya”, din statul San Luis Potosí, Mexic. Veți putea întâlni atât reprezentanți ai mai multor familii de succulente, cât și Cactaceae. Articolul cuprinde date despre formarea craterelor, ecologia lor și tipurile de formațiuni geologice cu solurile lor.

**Derrick Rowe**

**Myrmecodia beccarii - forma nordică - partea a treia.**

Cunoscutul specialist în plantele simbionte cu diverse specii de furnici, își continuă maratonul descriptiv despre specia australiană *Myrmecodia beccarii*, forma nordică, dar și despre cea sudică, acest articol fiind partea a treia și ultima a prezentării sale.

**Elton Roberts**

**Note de cultură despre Mammillaria pectinifera**


Vorbind despre *Mammillaria pectinifera*, autorul străbate, deopotrivă, atât latura taxonomică și discrepanțele care există între diversele descrieri ale acestui taxon, dar și propria sa experiență în cultura plantei, subliniind că a întâlnit, printre plantele sale, mai multe exemplare, care deși aparțin speciei, nu coreespund criteriilor din descrierile oficiale. Modul de a cultiva specia în discuție este privit din unghiul cultivatorului care dorește plante cat mai mari și mai spectaculoase. Răsfoind articolul veți putea vedea un incredibil exemplar de 16 cm în înălțime și de opt centimetri în diametru.
Ricardo Ramirez Chaparro

Echinoceerus aff. chaletii în Baborigame

Ricardo Ramirez Chaparro este, după Mammillaria senilis (Xerophilia nr. 13, iunie 2015) și Echeveria chihuahuensis (Xerophilia nr. 14, septembrie 2015) la al treilea pictorial în care ne prezintă incredibila floră xerofită din împrejurimile localității Baborigame. Aici, într-o pădure aridă, de stejari și pini, pe stânci, la soare sau la umbra arboretului se dezvoltă o stranie floră și faună, pe care ne-am aștepta să o întâlnim mai ales în deșert.

Așa cum spune și titlul articolului, în acest număr veți întâlni o specie de Echinocereus care nu a fost încă înregistrată în această locație și care pare a corespunde, în opinia autorului, frumosului Echinocereus chaletii.

Marco Cristini

Sedum burrito, această suculentă de... nicăieri

Autor al mai multor articole despre succulente, Marco Cristini vine în acest număr cu un remarabil articol despre o specie de Crassulaceae. Mai putin cunoscută și foarte adesea confundată cu altele: Sedum burrito. Foarte decorativă și elegantă, această specie este lăsată în uitare din cauza mult mai cunoscutului și foarte asemănătorului Sedum morganianum de care diferă totuși prin structura frunzelor și prin culoarea florii.

Având o creștere considerabil mai lentă decât S. morganianum, care crește cam 20-30 de cm anual, S. burrito nu este dificilă în cultură, având totuși nevoie de soare și de o iernare la temperaturi mai joase. Fără a fi o plantă din categoria "hardy", această Crassulaceae rezistă fără probleme unor ierni ușoare, dacă este ținută într-un loc uscat și ferit de intemperii.

Citind articolul veți găsi deopotrivă date taxonomicе extrem de interesante, o istorie a speciei dar și unele sfaturi de cultură.

Eduart Zimer

Note despre Disphyma australe în Rangitoto

Eduart Zimer, este un neobosit căutător al florei succulente, atât nativă, cât și invazivă, din Insula de Nord a Noii Zeelander și din împrejurimile ei. Astfel în anul 2012 el găsăea în insula Motutapu un hibrid intergeneric între Carpobrotus edulis și Disphyma australe, pe care l-a numit ×Carpophyma. Hibridul se afla la mică distanță de părintele Carpobrotus... dar unde era celălalt părinte? Unde se afla Disphyma australe?

După mai bine de trei ani de căutări, în mod cu totul fortuit și, mai ales neașteptat, Eduart Zimer a descoperit trei populații ale plantei căutate, pe insula vecină, Rangitoto. Prezența speciei Disphyma australe în Rangitoto nu este în sine ceva extraordinar, dar faptul că ea se găsește pe coastă șenalului ce desparte Rangitoto de Motutapu, la aproximativ 100 de m, chiar în fața locației coloniei de Carpobrotus edulis, care a dat naștere susmenionatului hibrid, este confirmarea faptului că polenizarea de către albine a fost posibilă.
Stefan Nitzschke

_Mammillaria heidiae_, o frumusețe ascunsă

Chiar dacă scrie rar, _Stefan Nitzschke_ este întotdeauna o surse de cunoaștere care trebuie folosită fără rezerve. În acest număr, ne prezintă câteva fotografii ale unei mamilarii, rară în colecții: _Mammillaria heidiae_ apropiată de _Mammillaria zephyrantoides_. Pe cât este de frumoasă, pe atât de necunoscută a rămas!

Fotografii din habitat cu plantele ascunse în sol organic, printre resturile vegetale, nu lasă de bănuit faptul că este extrem de sensibilă la excesele de apă...

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