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Cover picture: Gymnocalycium meregallii, Sierra de Comechingones, province Córdoba, Argentina (photo: M. Meregalli)

## Editorial

## Dear Gymnocalycium enthusiast!



Some basic changes have been made at the 18th International Botanical Congress. For first descriptions, it will no longer be necessary to have a Latin diagnosis and the name can be validly published in an electronic publication, such as a pdf file. This rule started to be valid from the first of January 2012. Thus, for the first description of *Gymnocalycium meregallii* Bercht in this issue, there is no Latin diagnosis. The abstract of the article is as follows:

The Nomenclature Section held just before the 18th International Botanical Congress in Melbourne, Australia in July 2011 saw sweeping changes to the way scientists name new plants, algae, and fungi. The changes begin on the cover: the title was broadened to make explicit that the Code applies not only to plants, but also to algae and fungi. The new title will now be the International Code of Nomenclature of algae, fungi, and plants. For the first time in history the Code will allow for the electronic publication of names of new taxa. In an effort to make the publication of new names more accurate and efficient, the requirement for a Latin validating diagnosis or description was changed to allow either English or Latin for these essential components of the publication of a new name. Both of these latter changes will take effect on 1 January 2012. The nomenclatural rules for fungi will see several important changes, the most important of which is probably the adoption of the principle of "one fungus, one name." Paleobotanists will also see changes with the elimination of the concept of "morphotaxa" from the Code.

#### Reference:

Miller, James S. et al. (2011): Outcomes of the 2011 Botanical Nomenclature Section at the XVIII International Botanical Congress. PhytoKeys (5) 1-3 (<u>www.phytokeys.com</u>)

We would like to express our special thanks to Mr. Graham Charles (United Kingdom), who supports us with the English language, to Mr. Takashi Shimada (Japan), who translates SCHÜTZIANA into Japanese and to Mr. Daniel Schweich (France), who has mirrored our publication under: <u>http://www.cactuspro.com/biblio/</u>.



Gymnocalycium meregallii spec. nov. – a magnificent new species from the low mountains in the central east of the Argentinean province Córdoba

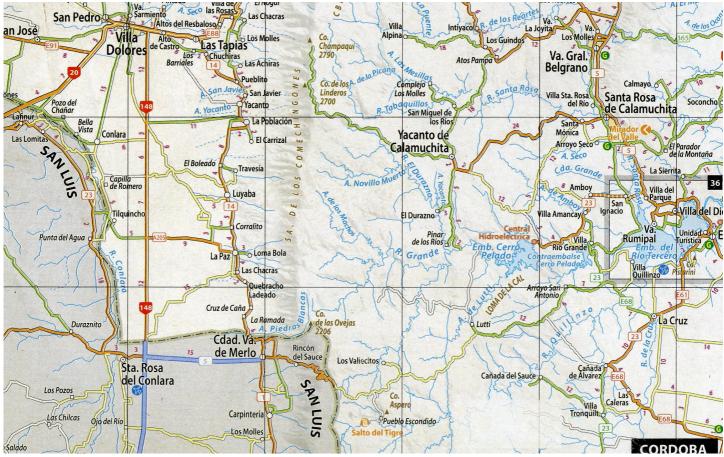
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## ABSTRACT

*Gymnocalycium meregallii* nov. spec. is described from the southern part of the Sierra de Comechingones, province of Córdoba, Argentina. The species is compared with *G. papschii*, which it resembles in the body and spination, and from which it is easily distinguished in the completely different size. It differs in the sexual behaviour of the flowers, the colour of the perianth leaves and the inner side of the flower and the size and shape of the fruits. Some notes on the habitat where the new species was found are given, together with remarks on the other species of *Gymnocalycium* living together with *G. meregallii*.

Planning a research trip to the habitats of known and unknown cacti is already a part of the fantastic experience to find, see and photograph our friends in the South American nature. For 2009, Massimo Meregalli had again prepared a trip through interesting parts of Argentina. From the Internet, private information and a good feeling, he got the idea that the awful, bad road from La Cruz in Córdoba to Ciudad Villa de Merlo in San Luis could be possible to drive. The major reason that this dirt road was upgraded in recent years was the fact that it became part of the route of the Dakar Rally.



## Fig. 1: Map.

Together with his companion Andrea Funetta they drove this road, which now would even be possible with a normal car. What did they expect to find? Relatives of *Gymnocalycium monvillei* (Lemaire) Britton & Rose and perhaps *G. horridispinum ssp. achirasense* (H. Till & Schatzl ex H. Till) G. Charles could be expected; then further on, representatives of *G. bruchii* (Spegazzini) Hosseus could also be possible. Something else as well?



Fig. 2: Panorama from the habitat of *G. meregallii* MM 1200

Fig. 3: Landscape at location MM 1239/LB 4313 (= MM 1200)

Indeed, between the rocks they saw plants related to *G. monvillei* and *G. achirasense*. Above 1000 m, *G. bruchii* was not seen anymore; higher up, populations of *G. andreae* (Bödeker) Backeberg were found. But nature had still another surprise for them. Plants were found belonging to the genus *Gymnocalycium* which were completely unknown to them. From the impression of the plants, and affirmed by the seeds they found, these plants belong to the subgenus Gymnocalycium. The field number MM 1200 was given to this interesting discovery, some kilometres east of Los Vallecitos. In January 2011, Meregalli and Funetta again visited the habitats of this species MM 1200 and, in combination with the research done at home, Meregalli more and more came to the conclusion that it was a good, undescribed species. Additional details were collected and more populations were found.



Fig. 4: The soil at location LB 4313

In the summer of 2011, the plants could be observed during growth, flowering time and fruiting period. During the Gymno-meeting held in Carmagnola (Turin) in July 2011, I also could examine the plants, and these data also brought me to the conclusion that it was an undescribed taxon, which could be presented as a new species to science. But before doing it, I also wanted to observe the plants in nature and make my final conclusions. In January 2012, Massimo Meregalli, Tomáš Kulhánek and myself were on a research trip in Argentina and of course we had the opportunity to

study the plants in their natural habitats. We discovered several more populations along the road which connects La Cruz with Merlo. Although it is not always easy to say in words, the clear impression was that these plants have a different "face" from all other known *Gymnocalyciums*. The conclusion was easy; this plant has to be described.

#### DIAGNOSIS

## Gymnocalycium meregallii Bercht, spec. nov.

It differs from *G. papschii* by a smaller flower, whitish colour of the perianth segments, no specific colour of the inside of the receptaculum and small, globose fruits.

**Typus:** Argentina, province Córdoba, between Lutti and the Sierra de Comechingones, 1400–1800 m above sea level. **Holotype:** M. Meregalli MM 1200 (TO)

#### DESCRIPTION

**Stem** flattened to subglobose in adult specimens, rounded, 4–6 cm diameter, up to 8 cm in larger plants, 2 to 4 cm high, up to 6 cm in large plants, usually single, seldom spontaneously branching at base, generating 1–3 offsets, never forming clumps unless plants are damaged. **Epidermis** light glaucous–green to dark green, scarcely glossy, sometimes with a coppery fade on the upper part of tubercles. **Root** carrot–like, at least as thick as, and scarcely differentiated from, the base of stem, over 10 cm long, with sparse, small lateral roots in the lower half and a few longer narrow roots spreading horizontally from the upper part.



Fig. 5: G. meregallii root system

Fig. 6: G. meregallii MM 1200

**Ribs** (9) 11–13 (15), generally 9–10 in smaller plants and up to 17 in larger specimens, moderately globose, with broad globose tubercles, slightly transversely compressed in the lower part. **Longitudinal furrows** about 5 mm deep, deeper in the upper half of the stem, slightly but distinctly sinuate.



Fig. 11: G. meregallii MM 1200

Fig. 12: G. meregallii LB 4313

**Transverse clefts** of variable depth, distinctly impressed and nearly continuous over the whole width of the rib or shallower and limited to median part of the rib. **Areoles** broadly ovate, inserted on upper part of tubercles, nearer to lower side of transverse clefts, with dense short whitish hairs. **Radial spines** generally 9 (11), 6 (8) lateral and 1 lower spine, 10–25 mm long, round in section, less than 1 mm across at base, with (0) 2 (4) very short upper spines; lateral spines usually slightly flexible, straight or more often moderately and irregularly curved, openly interlaced, often not completely appressed to stem, seldom suberect; upper 2 lateral spines horizontally inserted, the remaining 4 (6) more or less curved downwards; lower spine generally shorter than 2 inferior lateral spines; all spines usually white, or sometimes greyish, for most of their length and slightly brownish near base; upper spines less than 10 mm long, not present on all areoles, generally white; young plants with radial spines shorter and completely white or whitish.

**Central spines** absent in young plants, 1–2 (3) in adult plants, distinctly prominent, vertically inserted if single, if 2–3 vertically aligned in median part of areole, and a little divaricated, up to 25 mm long, flexible, scarcely stiff, base usually slightly thicker than radial spines, horn–coloured at base, lighter to whitish on apical half.



Fig. 13: G. meregallii LB 4314

Fig. 14: Meregalli together with *G. meregallii* (LB 4314)



Fig. 15: G. meregallii LB 4315



Fig. 16: *G. monvillei* LB 4317 growing together with *G. meregallii* LB 4315





Fig. 17: *G. meregallii* LB 4318

Fig. 18: *G. andreae* LB 4320 growing together with *G. meregallii* LB 4318



Fig. 19: G. meregallii MM 1200 with flower



Fig. 20: Flower of a male plant



Fig. 21: Flower of a female plant



Fig. 22: Flower of a male plant

**Flowers** in the top on the new areoles, generally unisexual, small, shortly and narrowly funnel– shaped, broadly opened only in upper part of perianth segments, 35–45 mm long and wide; **perianth** about 3 times as long as pericarpel; **pericarpel** about 10 mm long and wide, moderately broadened at upper part, externally light glossy green, with a few short greenish subtriangular scales, 3 x 3 mm, lighter at margin, progressively larger towards upper part of pericarpel; **outer perianth segments** oblong to spathulate, up to 15 x 10 mm, outer face light greenish, turning to brown–pinkish apically and whitish towards sides, inner face whitish, with pale pinkish top; **inner perianth segments** oblong, up to 20 x 8 mm, completely white from base to apex on both faces, seldom with a very pale pinkish median stripe on outer face; **receptaculum** subcampanulate, completely white, in section tissues white in inner half, green in outer half, bottom completely white; **ovary** round or slightly transverse, 5 mm across, **male flower** with stamens irregularly inserted all along the receptaculum, short, reaching the upper part of receptaculum but not extended towards upper part of perianth segments, the lower ones shorter and appressed to style; stamen filaments white; anthers white, pollen pale yellowish; style shorter than stamens, scarcely developed, lobes of stigma narrow, scarcely developed; ovary with ovules; **female flower** with sterile stamens, as long as on male flower; style thick, white from base, top of stigma as high as top of stamens, stigma lobes 5–7, broadly expanded, as long as 1/3 of style, white.



Fig. 23: Flower of a female plant

**Fruit** semi–globose, glossy green, up to 1.5 cm high and 1.0 cm broad, scales slightly broader and less acute than during anthesis, 3 x 2 mm, more or less rounded apically, light greenish to whitish, slightly pinkish in upper part; dry remnants of perianth segments present, circa 1 cm long. Every fruit contains circa 100 seeds. **Seed** (nomenclature following Barthlott & Hunt, 2000) oval, about 1 x 1 mm, matt black to dark brown, periphery not keeled, border very lightly expanded around HMR, weakly sinuate; cells isodiametric, subpolygonal, gradually smaller towards HMR; anticlinal

boundaries shallowly channelled, curved; cuticle fielded-striate; cuticular sheath present, folded, light greyish to yellowish, rather consistent on most of surface, absent from small irregular patches; HMR broadly oval, often narrower at micropyle region, micropyle and hilum conjunct, hilum nearer to margin of HMR; strophiolar pad thin, uniformly distributed. On the basis of the seeds it belongs to the subgenus Gymnocalycium.



Fig. 24: *G. meregallii* MM 1200 with fruits

Fig. 25: Fruit of G. meregallii

**Type:** from the population along the road from La Cruz to Merlo, about 10 km east of Los Vallecitos, designated with the field number MM 1200.

**Distribution:** Populations of this species can be found along the road that crosses the Sierra de Comechingones between Ciudad Villa de Merlo on the western side and La Cruz on the eastern side. The plants live between 1400 and over 1800 m above sea level, in open mountain pampa, often near or below large rocks. The habitats at and above 1700 m are characterized by white quartz rocks. The populations at higher altitude usually have thinner and longer spines, and the central spines can number up to four. It seems likely that this species occupies a relatively narrow strip in the eastern slopes of the southern part of the Sierra de Comechingones. Habitats at lower altitude were investigated, along the La Cruz – Merlo road and also north of Lutti; they are probably unsuitable for this species since we could not find any. Research on the north side of the Rio Grande along the road reaching Cerro de los Linderos, some 40 km north, at the appropriate altitude, did not yield any specimen. Other species of *Gymnocalycium* found together with, or near to, *G. meregallii* are *G. monvillei* (Lemaire) Britton & Rose, sympatric but not exactly syntopic – it prefers coenoses with larger and more exposed rocks, *G. andreae* (Bödeker) Backeberg, sympatric and syntopic in the locations at higher altitude, above 1700 m, and other plants still under study.

**Conservation**: The new species has apparently a rather limited range in the central–southern part of the Sierra de Comechingones. No complete investigations could be carried out because most of the suitable habitats can be reached only with long walks. The populations where *G. meregallii* was

found have a good consistence and, although plants are occasionally damaged by cattle, they are not subject to excessive grazing. According to visual indications, the habitat seems to be quite uniform in a broad strip on the two sides of the road, thus suggesting that the species may be relatively common in it's albeit limited range. Due to incomplete habitat investigation, it must be assigned to the IUCN category DD (data deficient), but nevertheless it does not seem to be endangered at present.

At first glance – and certainly without bearing flowers – *G. meregallii* shows similarities with *G. papschii*, the distribution of which is far more northerly on the slopes of the Cerro Champaqui. To compare *G. meregallii* with *G. papschii* one has to take into account the remarks of Wolfgang Papsch (2010) regarding the confusion around the first description of the latter. The very striking differences are the structure, dimensions and colour of the flower, the appearance of male and female flowers as well as the shape and dimensions of the fruit. The flowers of *G. papschii* are not unisexual, larger, more funnel–form whereas *G. meregallii* shows a broadened receptaculum (urn–form). The flower of *G. papschii* has a pink colour with a darker stripe. The inside of the flower of *G. papschii* is dark pink where *G. meregallii* is white or sometimes with a trace of light green. As expected, the fruits of *G. meregallii* are smaller and more globose.

The species has been named after Dr. Massimo Meregalli from the University of Torino, Italy, who found this taxon for the first time. He is a professional entomologist and in his free time an enthusiastic grower and researcher of the genus Gymnocalycium.

## ACKNOWLEDGEMENTS

I would like to thank Graham Charles for correcting the English text.

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Illustrations of the author: 03, 04, 12-18, rest by Massimo Meregalli

# An interesting discovery of G. catamarcense from Palo Blanco and discussion around it



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Some time ago I got an email with photos of *Gymnocalyciums* from my friend who was travelling in Argentina. The plants were obviously not yet identified but from the first impression it was certain that they belonged to *G. catamarcense*. The finding place was shown as Palo Blanco in Catamarca. At first I did not realize where the stated finding place was exactly. From my enquiry, I got an answer that surprised me very much. Palo Blanco is actually north of Fiambalá where nobody has been looking for *Gymnocalyciums* until recently and, of course, none have so far been found. A group of Cactus Club members went to Palo Blanco and to the nearby mountains looking for *Mediolobivias* where they found *Gymnocalyciums* while they were searching and now I had those pictures in front of me.



Fig. 1–2: Rio Guanchin

It is already 10 years since I wrote a couple of lines in "Gymnofil" on the topic of *G. guanchinense* Schütz and mentioned the problem of the finding places in the first description. I have already

explained about the appearance of *Gymnocalyciums* in the finding places mentioned in that first description. The negative answers that I got were obviously frustrating for me. The Gymnos are not growing there and now back to the point of why I was surprise by the pictures and especially the finding place. Palo Blanco is not too far from the location based on Frič's verbal explanation found in Schütz's first description as the type location of *G. guanchinense*.

During our last year's visit to Argentina we had planned to search in more detail the little known places in San Luis, in the south of La Rioja and in the north of Cordoba. Palo Blanco was far from our target locations, but we could not resist going there. Even the previous trips were 6 weeks long but were still not long enough. We left the proposed visit to Palo Blanco until the end of our trip, and then we would be going back to Buenos Aires just making a couple of small stops. Although we had been around Fiambalá in 2007 and near the river under discussion, the Rio Guanchin, there is on the other side, an estancia called Est. Guanchin, but we did not think to go there.



Fig. 3-4: Habitat of G. catamarcense fa.

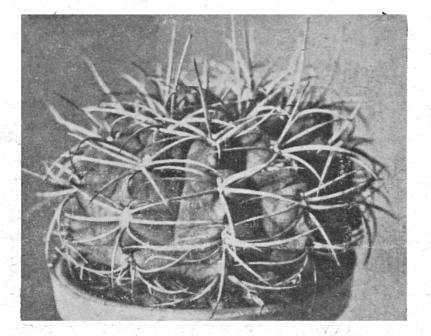


Fig. 5: G. catamarcense fa.

Fig. 6: G. catamarcense fa., with flower

Gymnocalicium guanchinense dr. Schütz spec. nova.

(Gymn. sp. Guanchin Fričův katalog n. n.)



Corpus sphaeram compressam, diametro 10 cm et ultra formans, brunneo\_ virescens. Costae circiter 13, humiles, rectae, incisuris in gibbos divisis separatae. Areolae oblongae, magnitudinis 5 $\times$ 2 mm, lana brevi, tortuosa, cano-alba vestitae. Spinae marginales 7-9, quarum una deflexa 20 mm longa; areolae latere utroque adsunt spinae tres circa 25 mm longae; spinae 2 supremae breves vel in'erdum desunt. Spinae omnes curvatae, colore corneo et superficie spongiosa, mcdo corpori adjacentes, modo plus patulae. Spina media

circa 25 mm et ultra longa, sursum curvata, interdum haud praesens. Flores circa 50 mm longi et totidem diametientes. Ovarium 20 mm longum cyaneo-viridis, squamis raris, cyaneo-viridibus et margine roseis instructum. Petala externa oblonga, rotundata, rosea, subtus cyaneo-viridia et margine rosea; petala interna lanceolata, acuminata, rosea et longitudinaliter stria intensius colorata instructa, serico-nitida. Ovarium breve, stigma 8-fidum, luteum; stamina numerosa, filamenta sanguineo-rubra, antherae roseae, pollen luteum.

Fructus gracilis, conicus, cyaneo\_viridis, maturus longitudinaliter dehiscens. Semina numerosa, parva, nigra, opaca, elongato semiglobosa, facie plana strato suberoso instructa.

Habitat in Cordilleris Argentinae prope Rio de Guanchin.

Tělo tvaru zploštělé koule, hnědozelené barvy, průměru 10 cm a více, temeno lysé. Žebra v počtu asi 13, nízká, rovná, oddělená navzájem ostrými zářezy, jsou rozdělena příčnými zářezy v hrboly, vybíhající pod areolami v bradu. Areoly jsou podlouhlé, velikosti cca  $5\times 2$  mm, porostlé krátkou, šedobílou, pokroucenou plstí, avšak záhy lysé. Trny jsou

Fig. 7: *G. guanchinense*, first page of the first description, B. Schütz (1947)

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Fig. 8: G. guanchinense, seedling from seeds of B. Schütz, without flower

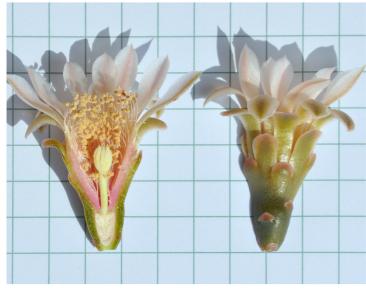


Fig. 10: G. guanchinense, flower section



Fig. 9: G. guanchinense, seedling from seeds of B. Schütz, with flower



Fig. 11: G. guanchinense, material from Rausch, without flower



Fig. 13: G. guanchinense fa., Palo Blanco



Fig. 12: G. guanchinense, material from Rausch, with flower

We went to visit the habitats of *Lobivia famatinensis ssp. bonniae* and *Puna bonniae*. A long stretch of the road that goes to Chile is alongside the Rio Guanchin (fig. 1 and 2). In the north of Fiambalá, and also partly in the south, lies a large sandy plain, literally a "little Sahara" enclosed on three sides by mountains. About 40 km northwest from Fiambalá, about in the middle of the plain is the small village of Palo Blanco. A new road goes from Fiambalá to the village. In these westerly places the sand gradually turns into a gravel substrate (fig. 3 and 4), and in such silt and gravel are growing sparse bushes. And exactly there, following the instructions of our colleagues, we found these plants.



Fig. 14-15: G. guanchinense fa., Palo Blanco

At first sight it was clear that these plants belonged to the group of *G. catamarcense*. In most cases the plants are grateful for the shade under bushes. The diameter of mature plants is more than 12 cm and the height can exceed 20 cm and the long narrow areoles are interesting. They have 7–9 spines, about 15–20 mm long, but central spines were not observed. The spines are more or less appressed to the body and one is facing down. The length and colour of the spines are very variable. At the time of our visit, the plants were not flowering, but by the blue–green fruits it was possible to say that the flowers have a short pericarp (fig. 5 and 6).

From this location we moved a few kilometres to the west and found more of the same plants. About 17 km north of Palo Blanco the same plants also grow. So the first short survey of the area indicated that the plants under discussion are located west and north of Palo Blanco in places where there is no sand and mainly concentrated near the previously mentioned mountains, dominated by gravel substrate (our findings). According to a report from the Italian cactus growers, they also found *Gymnocalyciums* this year on the eastern and northern side of the sandy plains, again in the foothills of local mountains. They are also *G. catamarcense* but with a different habit so we can say that we have in the area of Fiambalá three different habitats belong to *G. catamarcense*. We were very disappointed that we could not stay in this location for much more time. In those days there was no

fuel at the petrol stations either in Tinogasta or in Fiambalá so we had to return from this location after a short survey. We got fuel at the last minute as far away as San Blas so another trip to these locations will be waiting for us or somebody else to help remove the uncertainties about *G. guanchinense* and its finding place near to the Frič locality.



Fig. 16–17: G. guanchinense fa., Palo Blanco

Before the next passage, I want to say that I would not like any of my words in the following article to be taken as critical. This is certainly not my intention; I just want to point out another fact seen by my own eyes and my opinion which is prompted by findings near Palo Blanco. It also needs to be pointed out that Palo Blanco is not Rio Guanchin (Catamarca), as it is written in the first description. These places are about 20 km apart, but we were not looking in the region of the Rio Guanchin, although I believe that the plants will be found there also. Actually, I do not know precisely the described plant's habitat, which is indicated. In practice, most of the time it is impossible. In the Austrian journal "Gymnocalycium": 17 (3) 2004, in the article "On the identity of *G. guanchinense* Schütz" are citied different habitats. Here, you need to realize that the first description is important. The words "By Famatina, Cuesta Guanchin" is written by Schütz in his "Monograph" but Walter Rausch had brought new evidence in 1972 about *G. guanchinense* (fig. 9?) so he naturally repeated the new Rausch statement in his own monograph. But it is quite strange why the neotype preserved the original Latin of the Rio de Guanchin as the locality, but the location of the neotype site is actually fairly far southwest of the suspected site of Guanchin, in prov. La Rioja on the other side of the Sierra de Famatina in the vicinity of Puerto Alegre and Piedra Pintada.

Generally, it is not possible to say that all data from Frič were bad, but we cannot say that they are all good. I convinced myself when I was visiting Patagonia, the data relating to *G. gibbosum* and comments on the Sierra de la Ventana were very good. The president of our Cactus Club, a well known *Notocactus* specialist, visited Uruguay a little while ago. Based on Frič's notes from the region

of Piriapolis he found an old empty hotel in Libiny and the journey from the hotel to the finding place of *Wigginsia* was described precisely, so he could still find *Wigginsias* today and so on. And so it is probably not correct to declare Frič's indication of a finding place as wrong and make a statement about a new finding place. It is understandable that if it is to be maintained, *G. guanchinense* Schütz had to have some plant designated as a neotype and so also a habitat.



Fig. 18–19: G. guanchinense fa., Palo Blanco

Now something about the plants. I think it is necessary to also identify these plants with a very nice picture of a plant which was printed in Schütz's first writings in 1947, as it is normal in many other cases.

To date, there has not been discussion about this picture (fig. 7) which is known only by a few people. It was not published even in the article in "Gymnocalycium" 17 (3) 2004. If we compare the plant in Schütz's picture with picture number 1 in that article, we see two different plant growth habits. The plant in Schütz's picture has immediately, at first sight, obvious affiliation with the species group of *G. catamarcense*. If you then compare plants from Palo Blanco with the picture from the first description, the matching is very noticeable. Perhaps only the central spine is in conflict, but it is mentioned in the first description that the plants can be without a central spine.

Schütz certainly did not describe young plants ("Gymnocalycium" 17 (3) 2004). If he sowed Frič's seeds in 1930, then by the year 1947, at the time of the description, the plants were 16 years old. Schütz mentioned that *G. guanchinense* grows slowly. I have grown plants myself from Schütz's seeds since 1988 and they are still small (fig. 8). And one more thing, in the pictures of the flowers, in the article already mentioned, the filaments in the flower are clearly white. But Schütz described them precisely as blood–red. I believe that the plant mentioned cannot simply be written off by saying that it is just a form of *G. catamarcense*. Give these plants more attention and discussion as it was done

before. Of course, it is still necessary to take the description of the neotype of *G. guanchinense* by H. Till as valid. I also believe that the area around Fiambalá has not yet revealed all its secrets. These are some thoughts to consider. How much is to be taken seriously, let the reader decide himself.

### ACKNOWLEDGEMENTS

I would like to thank Graham Charles for correcting the English text.

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