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Cover picture: *Gymnocalycium platense* WP 00-112/149, Argentina, Prov. Buenos Aires, Sierras Bayas (photo: Wolfgang Papsch)

Editorial

Dear *Gymnocalycium* enthusiasts



Gymnocalycium platense is one of the most often misinterpreted species of its genus, which has already been stated by Graham Charles in his book "*Gymnocalycium in habitat and culture*". He is of the opinion that this species should best be eliminated due to manifold confusion.

It is highly likely that that there were no samples of *G. platense* from the Sierras Bayas available for a long time, beyond the time of Britton and Rose as far as the 80s. And if there were any, the few existing specimens were probably pollinated with other maybe similar and certainly also wrongly named species in order to obtain seeds. The result of this is that the cultivated juvenile plants can hardly be associated with the original species because of their hybridised origin of seeds. A look at the multitude of pictures documented in the spheres of the World Wide Web, all of which are called *G. platense*, illustrates this assumption well. The question of what then really is *G. platense* can, in this case, be answered easily and plausibly, with the help of intensive study of sources, meticulous reading of publications and comparison of all relevant and existing data of the plants described with those at the natural habitats. It is deplorable that the situation at the respective sites will hardly allow the survival of this beautiful species in natural habitats and thus it will only be possible to admire it in cultivation in the foreseeable future.

We would like to express our warmest thanks to Mrs Iris Blanz (Fernitz, Austria), to Mr Brian Bates (Bolivia) and to Mr Graham Charles (United Kingdom), who support us with the translation into English, to Mr Takashi Shimada for the translation into Japanese and to Mr Daniel Schweich (France), who has mirrored our publications under <http://www.cactuspro.com/biblio/>.

Which is the oldest name of the *Gymnocalycium* species from the Sierras Bayas?

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ABSTRACT

In the hills around Olavarria (Argentina, Province Buenos Aires) there are some highly fragmented populations of a *Gymnocalycium* species made up of few individual plants. Roberto Kiesling described these as subspecies of *Gymnocalycium schroederianum*. 90 years previously Carlos Spegazzini describes an *Echinocactus platensis* of which he identifies the locality as Olavarria as well. At the same time he mentions *E. ottonis* by mistake, calling it *E. gibbosus var. ventanicola* shortly afterwards. Today this species is identified as *G. reductum*. By comparing the descriptions of these species, the added spine patterns and available pictures as well as information from further articles it is safe to state that two different species of the genus *Gymnocalycium* exist in and around the Sierra de la Ventana, namely *G. platense* and *G. reductum*. As no type is deposited, a plant from the Sierras Bayas is assumed to be the neotype.

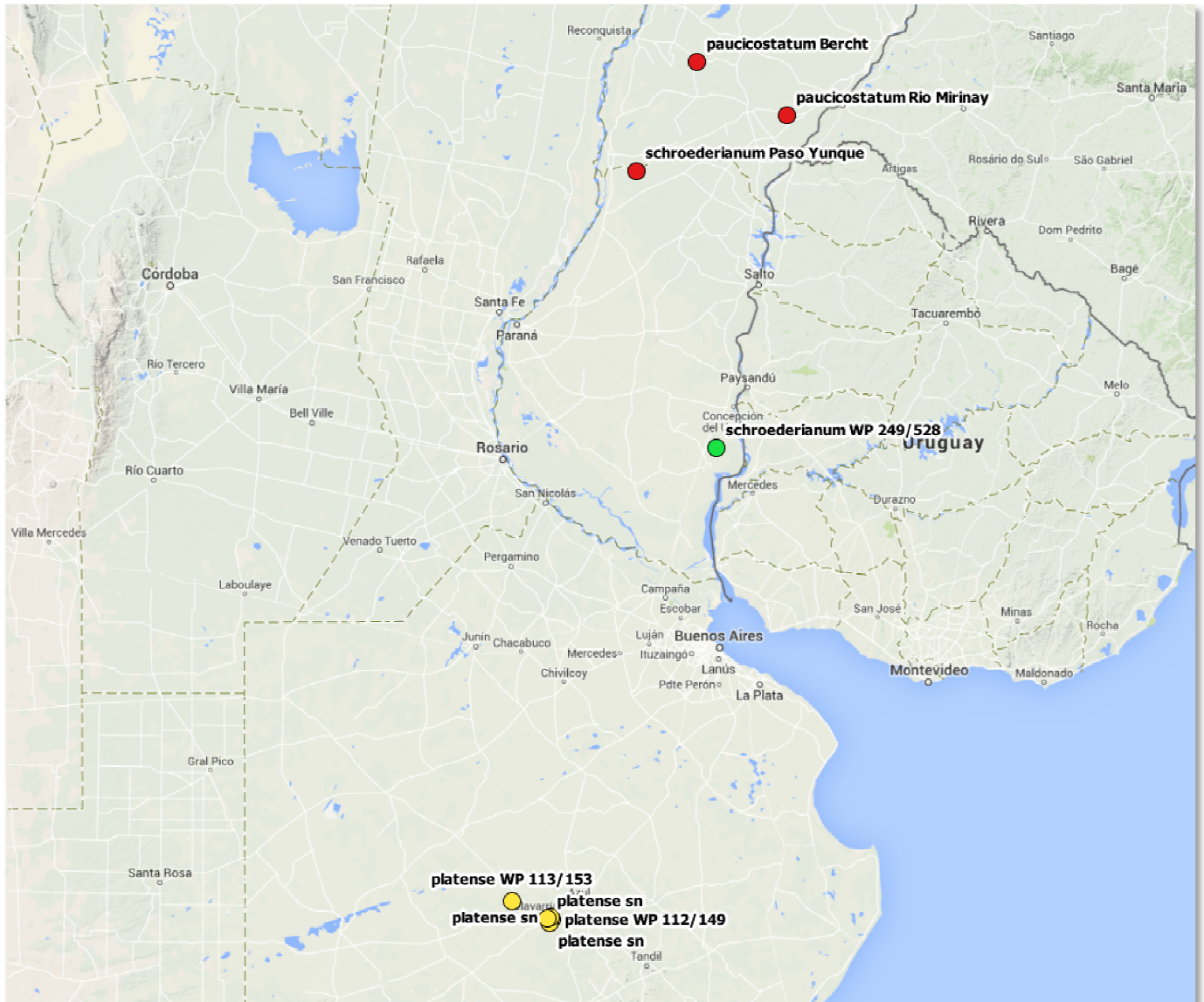
Keywords: Cactaceae, *Gymnocalycium*, *Gymnocalycium platense*, Nomenclature

INTRODUCTION

In *Gymnocalycium* 14 the author is of the opinion that the name *Gymnocalycium hyptiacanthum* (Lemaire) Britton & Rose is the oldest name for those plants from the north eastern part of Argentina, which were described again as *G. schroederianum* by Dr. Cornelius Osten (Papsch 2001). Thus the *Gymnocalycium* specimen from the Sierras Bayas (Province Buenos Aires, Dept. Olavarria), which Robert Kiesling described as *G. schroederianum subsp. bayense*, was assigned to *G. hyptiacanthum* as a subspecies.

In the first edition of this online journal Massimo Meregalli outlines in detail the situation of *G. hyptiacanthum*'s nomenclature (Meregalli 2010). He correctly states that this name can be applied only to plants from Uruguay at the moment. Dr Roberto Kiesling has established this fact of nomenclature (Kiesling 1999) by depositing a neotype chosen from a population discovered at Cerro Pelado near the village Florida (Uruguay). This is not the place to investigate whether this designation of the neotype is correct or not. So it is taken as a fact now that *G. hyptiacanthum* is a plant from Uruguay.

As already mentioned in the introduction and put into written form by Massimo Meregalli, there have been interpretations not only in the past, but also in the latest publications concerning the fact that *G. hyptiacanthum* might be identical with the much later described *G. schroederianum* or one of its subspecies (Papsch 2001, Till 2010). Because of this new situation of not being able to apply the name *G. hyptiacanthum* here any longer, the question arises whether another, older name exists explicitly for those plants from the Sierras Bayas, which were described as subspecies of *G. schroederianum*.



Map 1: Distribution of *G. schroederianum* sensu lato (map: Mario Wick)

DISCUSSION

G. schroederianum was described by Dr Cornelius Osten only in 1941. It is surprising that a plant from well-known and long-time urban areas had not been discovered earlier, since they grow within the Argentinean provinces Buenos Aires and Entre Rios. The distribution range of *G. schroederianum* with its type locality Nueva Melen at the Uruguayan bank of the Rio Uruguay, spans along this river in Argentina via Gualaguaychu to the north. About 350 km away from the northernmost point of the distribution area a subspecies with longer spination was

described as *G. schroederianum* *subspec. paucicostatum* Kiesling (Kiesling 1987). Another subspecies of *G. schroederianum* from the area of Olavarria, which is situated almost in the centre of the province Buenos Aires and thus almost 500 km south of the locality of the type form, was also described as *subspec. bayense* Kiesling by Kiesling (Kiesling 1987). The highly fragmented localities are therefore arranged along a line of about 800 km in length.

When studying older cactus literature, the site Olavarria can be found as locality of the cactus genus *Gymnocalycium* for the first time at the beginning of the 20th century in Carlos Spegazzini's publications. In his first papers, which are solely dedicated to cacti (Spegazzini 1905), he quotes *Echinocactus platensis* Spegazzini as no. 84. He specifies as locality for this species "*Vulgatus in montousis aridis Sierras pampeanus (Ventana, Curámatal, Olavarria etc.) et prope Córdoba.*" (Generally in dry mountainous areas of the pampine Sierras (Ventana, Curámatal, Olavarria etc.) and around Córdoba).

For those taxa which Spegazzini places as varieties close to *E. platensis* (*var. quehlianus*, *var. leptantha*, *var. parvula*) in this paper, no locality is mentioned explicitly. The distribution area established for the genus is therefore also valid for all varieties. The taxa *quehlianus*, *leptantha* and *parvula* are native neither to the area in nor around the Sierra de la Ventana, a mountain range situated in the utmost south western part of the province Buenos Aires. Their localities are located in the province Córdoba and possibly also in the province San Luis. So the stated locality "Ventana, Curámatal und Olavarria" can only apply to the species *E. platensis* and the extension of the locality to include Córdoba can only concern the three mentioned varieties. This makes the locality of *E. platensis*, identified by Spegazzini, comprehensible. It must be a plant from the Sierra de la Ventana or its surroundings, respectively Olavarria. This is corroborated by another quotation of a locality by Spegazzini 20 years later (Spegazzini 1925), when he states that *G. platense* is exclusively native to the southern mountains in the province Buenos Aires.

When reviewing Spegazzini's papers, which were published before 1905, some issues are particularly striking. Spegazzini's first publication, which also deals with cacti, is his study of the Sierra de la Ventana's flora (Spegazzini 1896). In this study he describes two new Echinocacti, first a form of *Parodia (Notocactus) mammulosa subsp. submammulosa* (Lemaire) Hofacker as *Echinocactus pampeanus* Spegazzini. The second new species described is *Echinocactus platensis*. As to locality of *E. platensis*, he mentions, "*Comun el las grietas de las rocas en los cerros del valle. Especie bastante frecuente tambien en Cura-matal y en las otras sierras pampeana, y se parece muchisimo a otra que vegeta en las Sierras de Córdoba*" (Generally in stone cracks on the valley's hills. This species also occurs in the Cura-matal and other mountains of the plain and is very similar to another species which grows in the Sierra de Córdoba).

Spegazzini discusses further Echinocactus species in this study. Two species (*E. corynodes* Otto and *E. tetraanthus* Lehmann) are nowadays allocated to the genus *Parodia* respectively *Notocactus*. A third species Spegazzini has found is by mistake identified by him as *E. ottonis* Lehmann. Sometime later he corrects this mistake and calls this species *E. gibbosus* De Candolle *var. ventanicola* Spegazzini. This description is considered as a more recent synonym of *Gymnocalycium reductum* (Hooker) Britton & Rose. In the same paper Spegazzini regards his *E. platensis* first also merely as a variety of his *E. gibbosus*, however, in later studies he vehemently defends the status as a species of its own (Spegazzini 1901).

Of special interest for this research are the spination patterns, which are added for the individually discussed taxa (except for *Cereus cerulescens* S. Dyck and *Opuntia pampeana* Spegazzini) in the study of the Sierra de la Ventana's flora. This drawing of spines shows for *E. ottonis* (= *E. gibbosus* var. *ventanicola* = *G. reductum*) the typical radial spination pattern of this species with numerous (12-18) radial spines and several (3-5) central spines, as it is typical of the plants of all *G. reductum* species from the whole Sierra de la Ventana (fig. 1-2).

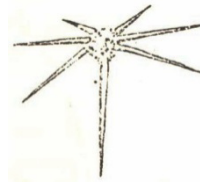
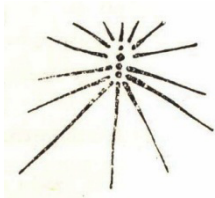


Fig. 1: Spine pattern *E. ottonis* = *G. reductum*.
(copy from Spegazzini 1898)

Fig. 2: Spine pattern *E. platensis*

Totally deviating is the spine pattern added to the protologue of *E. platensis*. It shows a spine pattern with three surrounding radial spines of different length and a more solid radial spine pointing downwards. Neither drawing nor description shows an indication of a central spine. (fig. 2).

Both these spine patterns correlate with illustrations left by Spegazzini. One illustration bearing the title "Sierra Ventana, II-1916, floreció en casa 22-27-X-1916", shows the bunch of spines as if it were drawn for *E. ottonis* (= *G. reductum*). The spine pattern of *E. platensis*, on the other hand, is shown by a photograph with the caption "*Echinocactus platensis* Speg. Ex Sierra Ventana" (fig. 3-4) (see also Kiesling 1984).

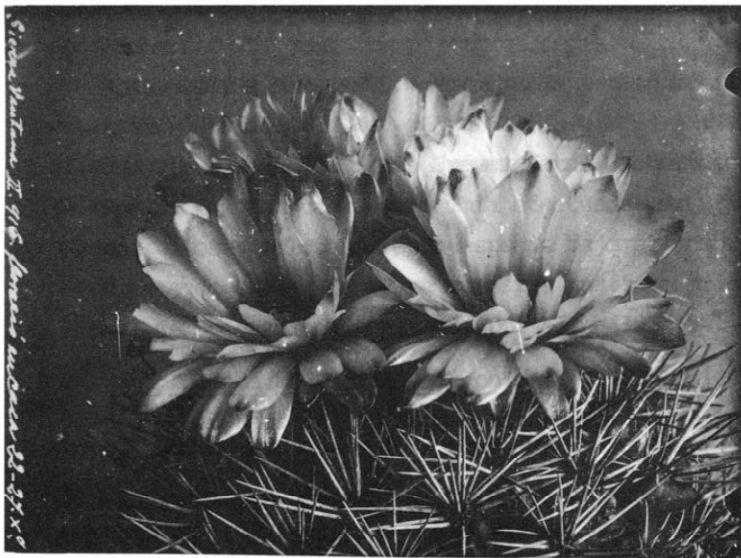


Fig. 3: *G. reductum*
(copy from Kiesling 1984)



Fig. 4: *E. platensis*
(copy from Kiesling 1984)

In his first description of *E. platensis* Spegazzini refers to a plant in plate 7 in Krook 1854 (fig. 5) and comments that this plant with its unequal spination is very similar, though not in its flower and sprouting areoles (Spegazzini 1898).



Fig. 5: Left table 7 in Krook 1854, right detail from table 7b



Fig. 6: *G. reductum* WP 15-15, Sierra de la Ventana

So far no plants with the spine pattern of *E. platense* have been found, in spite of several visits to the habitats in the Sierra de la Ventana (including Sierra de las Tunas, Sierra Curamal, Sierra de Pigüe, Sierra de Puan and Sierra de Pillahuinco.) As Spegazzini's study explicitly points out the valley of Los Vertientes as locality, the section between the villages Sierra de la Ventana and Tornquist were especially closely investigated. All populations investigated so far have to be counted among *G. reductum*, and thus among plants with a bunch of spines (fig. 6).



Fig. 7: *G. platense* WP 112-149, Sierras Bayas



Fig. 8-9: *G. platense* R 714, Sierras Bayas

In the vicinity of Olavarria (Sierras Bayas, Loma Negro, Cerro La China) there exist no plants which have anything in common with *G. reductum*. However, the *Gymnocalycium* species found there clearly and unmistakably show the spine pattern of *E. platensis* (fig. 7-9).

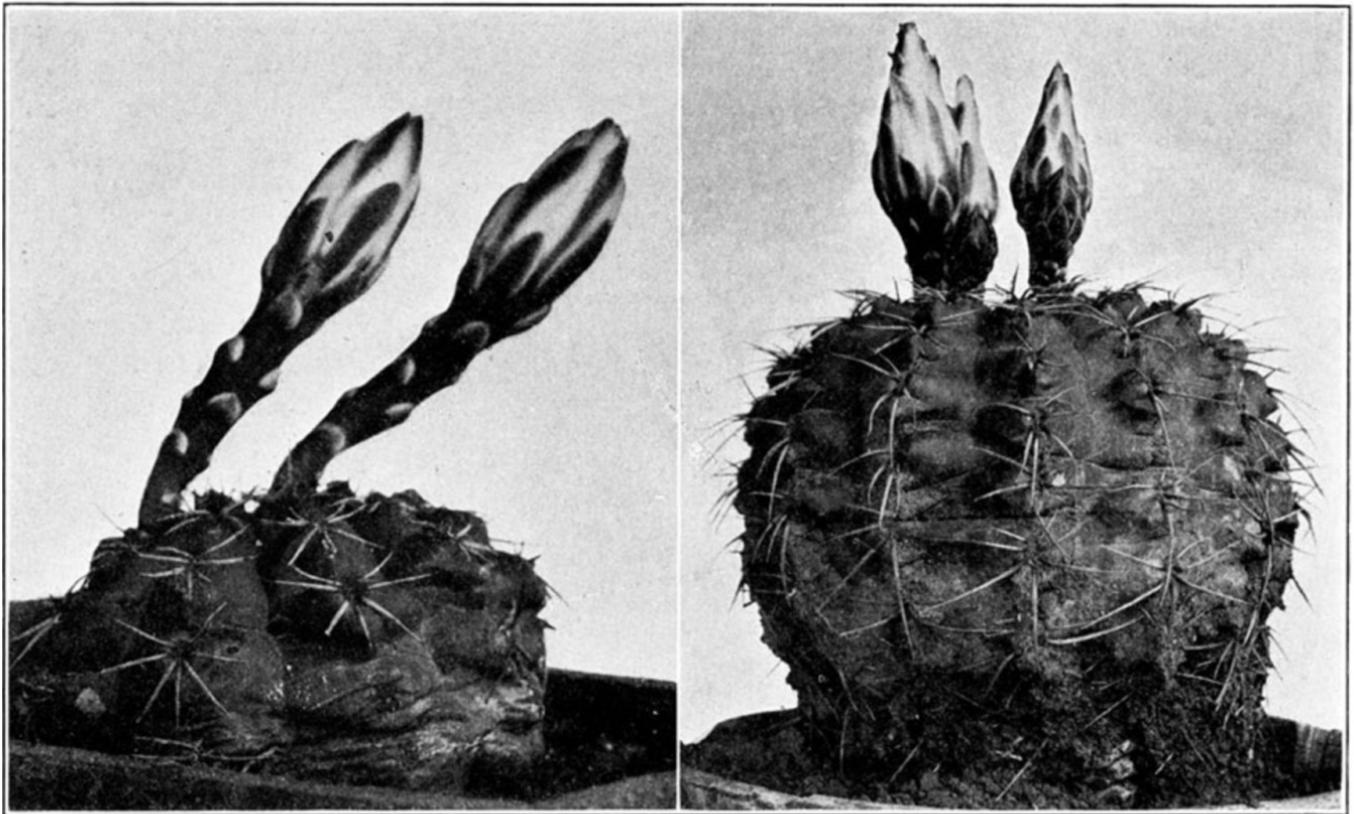
Spegazzini's already quoted illustration (fig. *E. platensis* Ex Sierra Ventana) is taken as further proof of the fact that the plants of the Sierras Bayas and of Cerro la China are Spegazzini's *G. platense*. In its first description the flower is characterised without indication of dimensions as possessing pale purple scales on a cylindrical-bell-shaped, dark green, hairless outer part with white petals. Later on he describes the flower in more detail, mentioning a short perianth tube, violet receptacle, lanceolate petals and a length of 55 mm. Spegazzini's illustration with its flower shortly before anthesis shows exactly these attributes. The flowers of the Sierras Bayas plants are in accord with these flower features as well. The same illustration can also be found in Britton & Rose, *Cactaceae* III as fig. 177. Spegazzini justifies this figure with the remark that it presents his old variety *typica* of *G. platense* (Spegazzini 1925) (fig. 10-11, 13-14).



Fig.10: *G. platense* WP 112-149, Sra. Bayas

Fig.11: *G. platense* WP 113-153, Co. La China

Britton and Rose were also responsible for the mix-up, which, in succession, is to be seen as *G. platense*. They publish three illustrations of *G. platense*, 3 in b/w (fig. 176, 177 and 178, Britton & Rose 1922: 164-165), and 2 in colour (Britton & Rose 1922: pl. 18 and 19). These figures depict 4 different species (fig. 176 is called *G. leptanthum*, fig. 178 = *G. baldianum*, pl. 18/2 is a plant collected in the vicinity of Córdoba, pl. 19/1 = *G. baldianum*). Spegazzini merely left fig. 177 to the two authors, it is identical to the illustration existing in La Plata.



FIGS. 176 and 177.—*Gymnocalycium platense*.

Fig. 12: Copy from Britton & Rose 1922: left plant is called *G. leptanthum* in the text, right *G. platense*.

SUMMARY

Two different *Gymnocalycium* species grow in and around the Sierra de la Ventana, namely *G. reductum* and *G. platense*. In Spegazzini's papers clear evidence can be found as to what he described as and considered to be *E. platensis*. His description of features, the spine pattern added to the protologue, his illustration of the flowering "*Echinocactus platensis* Ex Sierra Ventana" as well as figure 177 in Britton & Rose form a distinct image of this plant. Thus the two taxa *platensis* and *ventanicola* can be distinguished without ambiguity, which emphasizes the independence of *E. platensis* as a separate species. It can be assumed from Spegazzini's indicated localities that he did not find *E. platensis* in the Sierra de la Ventana, but that its locality is near Olavarria.

CONCLUSION

Hunt and Charles are of the opinion that the name *G. platense* should be abandoned (Hunt 2006; Charles 2009). Backeberg and Anderson call *G. platense* a separate species, and Egli refers to it as *G. hyptiacanthum* (Backeberg 1956, Anderson 2001, Anderson & Egli 2005). Spegazzini did not deposit a holotype, respectively any other type for his *E. platensis*. Unfortunately, Spegazzini's illustration and photos cannot be taken as a lectotype. Kiesling deems to identify the plant from the Sierra de la Ventana as *E. platensis* and creates a neotype for it. However, this is a plant from the morphogenetic spectrum of *G. reductum* and has no

relation to the plant from Olavarria (Kiesling 1982). Therefore a new neotype of *E. platense* must be specified. In 2001 a plant (dried specimen preparation, called *G. hyptiacanthum* (Lemaire) Britton & Rose) from the Sierras Bayas was deposited in BA (Papsch 2001). This specimen is herewith designated to be the neotype of *E. platense*.

Echinocactus platensis Spegazzini

Contribucion al Estudio de la flora de la Sierra de la Ventana: 7-8 (1896)

Type: not indicated, description with spine pattern

Neotypus: Argentina, Prov. Buenos Aires, Pdo. Olavarria, Sierras Bayas, leg. W. Papsch WP 112/149, 5.11.2000 (BA, neo) (SI, WU, isoneo), here designated.



Fig. 13: *G. platense* WP 112-149, Sras. Bayas Fig. 14: *G. platense* WP 113-153 Co. La China



Fig. 15: *G. platense* WP 112-149, Sierras Bayas

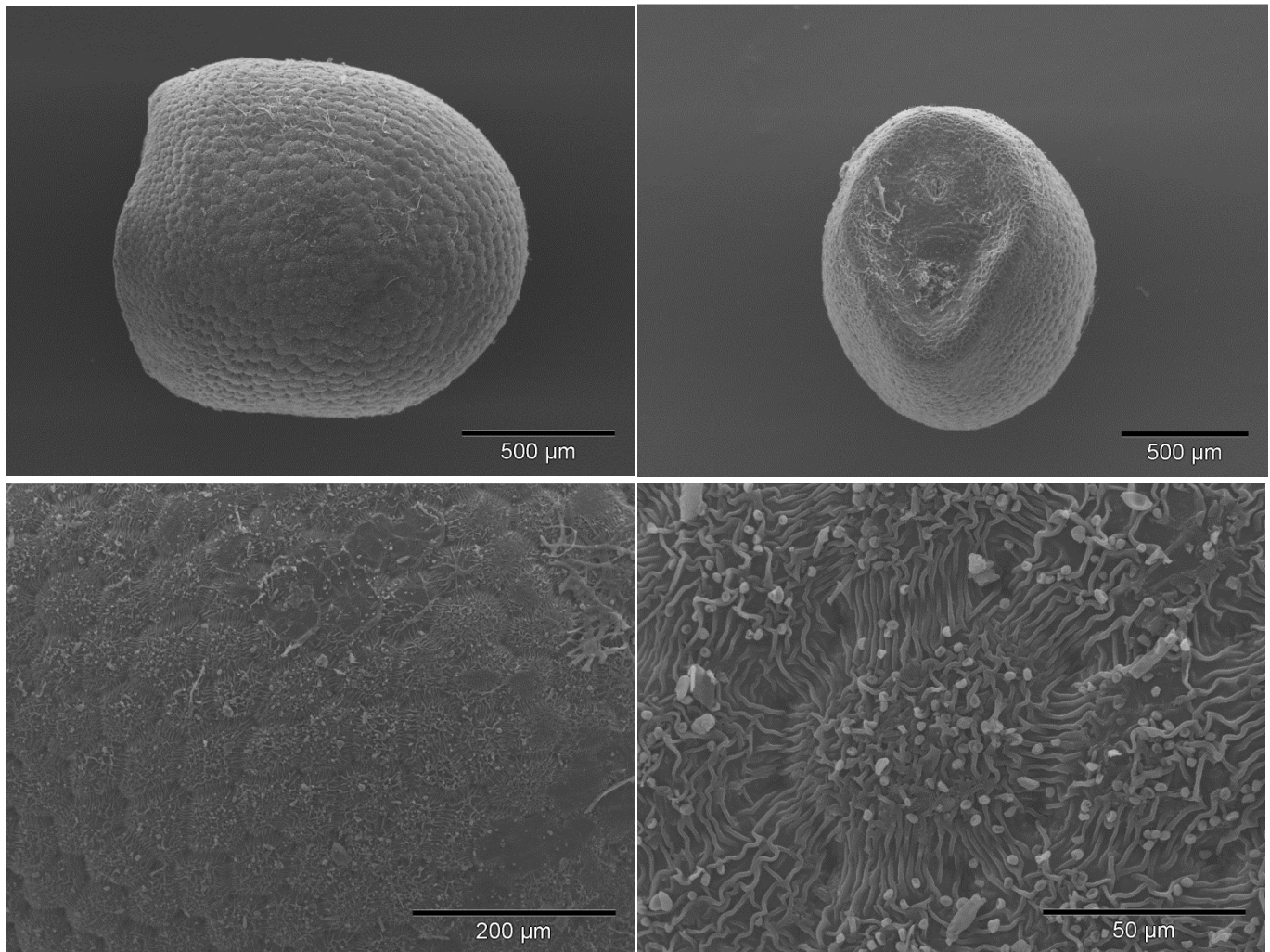
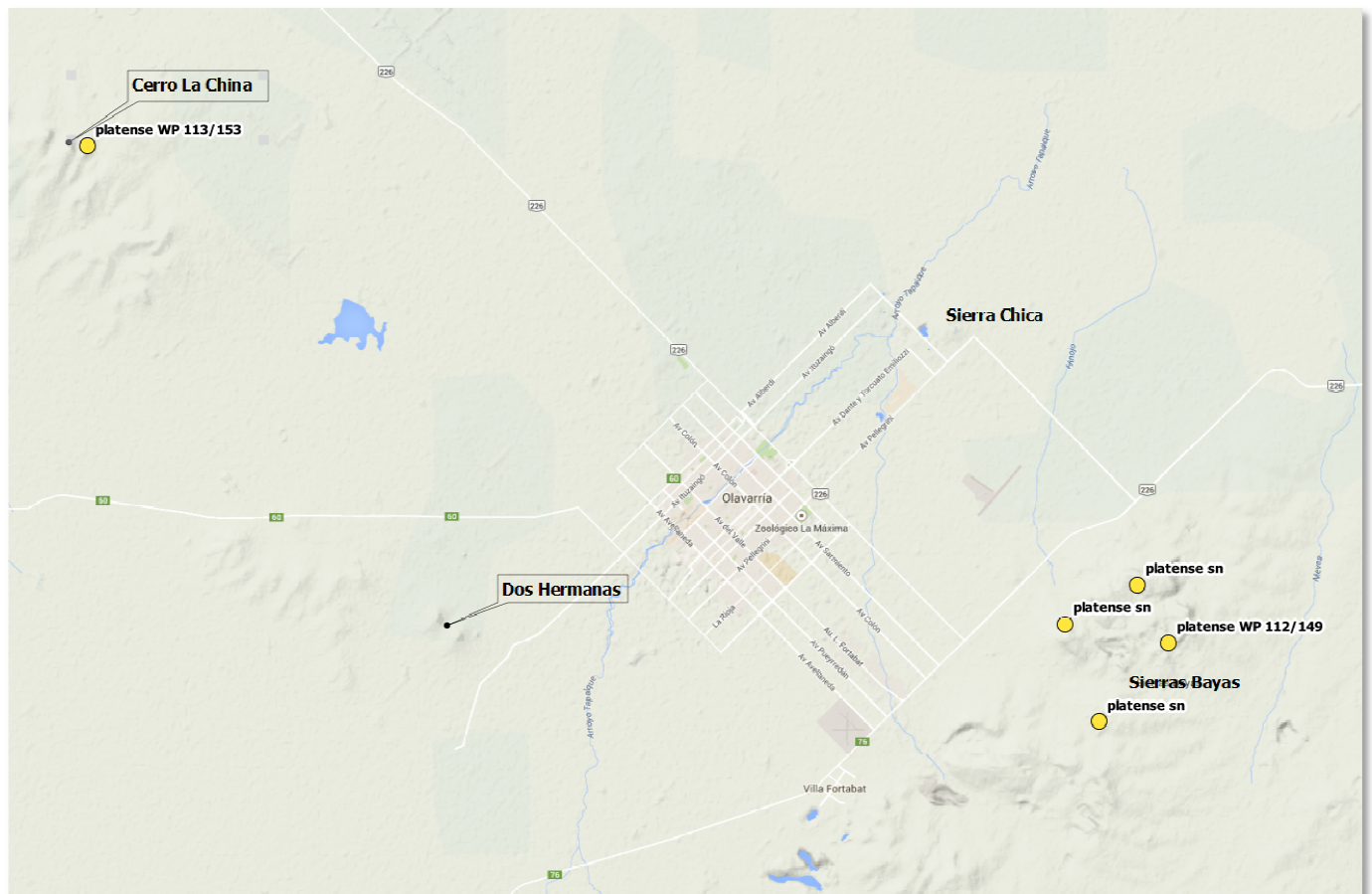


Fig. 16-19: Seed of *G. platense* WP 112-149, Sierras Bayas (REM's Mag. Michael Pinter).

DEGREE OF ENDANGERMENT

The *G. platense* investigated are scattered over an area of about 20 km by 40 km. A gap of about 40 km yawns already between the isolated populations in the Sierras Bayas and the one at Cerro La China. It is most likely that it is the urban pressure which has led to the disappearance of the species from the hills situated in between (Cerros Dos Hermanas, Cerro Chico). In several inspections of these very small elevations no more plants could be found despite an intensive search. Massive mining of rocks for cement production endangers the habitats in the Sierras Bayas tremendously. The areas where plants can still be seen are quite often only a few square meters in dimension and already highly fragmented. The site Loma Negra, where granite is quarried, has already been completely destroyed. At Cerro La China, for instance, the habitat is merely of a size of 100 square metres. The individual populations consist mostly of very few specimens (e.g. Cerro La China 24 plants). In individual sites in the Sierras Bayas often less than three plants could be studied.

From the field studies of the last 15 years it must be concluded that this species has little or even no chance of survival in nature. Thus the degree of endangerment "threatened by extinction (CR)" - **CRITICALLY ENDANGERED (CR)** is to be stated as a fact.



Map 2: localities of *G. platense* around Olavarria (map: Mario Wick)

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Fig. 20: *G. platense* WP 112/149, Sierras Bayas