

Cactaceae type specimens deposited in the Museo Argentino de Ciencias Naturales (BA Herbarium), Buenos Aires, Argentina

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Abstract: The Herbarium of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (BA Herbarium) was the first official herbarium in Argentina. Initiated in 1853, it holds about 150,000 herbarium specimens at present, most of them collected all over Argentina, but also obtained by exchange with other national and international botanical institutions. About 100,000 correspond to vascular plants, and 800 represent nomenclatural type specimens. Cactaceae type material deposited at BA is presented. This article includes a list of the 57 type specimens alphabetically arranged; scientific names with author of taxon, original publication data and type category are transcribed from the original labels. Currently accepted scientific names are also included. Under observations, ecological information or additional comments written by the author of the description are given. Under notes some consideration of our own, most regarding to the current synonymy, are given. These type specimens are kept in special metal cabinets, separated from the rest of the herbarium material and documented with a copy of the original diagnosis or publication. As part of the Digitization of Biological Collections Project carried out by the museum, the complete information of each specimen was digitized and is available online through the website of the Sistema Nacional de Datos Biológicos (SNDB) and the Global Biodiversity Information Facility (GBIF).

Key words: Type specimens, Cactaceae, Herbarium BA, Argentina.

Resumen: Ejemplares tipo de Cactaceae depositados en el Museo Argentino de Ciencias Naturales (Herbario BA), Buenos Aires, Argentina. El Herbario del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (Herbario BA) fue el primer herbario oficial de Argentina. Iniciado en el año 1853, alberga actualmente unos 150.000 especímenes de herbario, la mayoría de ellos colectados a lo largo y ancho de Argentina pero también obtenidos por intercambio con otras instituciones botánicas tanto nacionales como internacionales. De todos ellos, aproximadamente 100.000 corresponden a especímenes de plantas vasculares y 800 representan especímenes tipo. Continuando con la publicación de los datos de los ejemplares tipo depositados en BA, se presenta un catálogo del material tipo de Cactaceae. El presente artículo incluye un listado de los 57 especímenes tipo alfabéticamente ordenados; se transcribe para cada uno de ellos el nombre científico y autor del taxón, así como la información original de etiqueta. En las observaciones se incluye la información ecológica o comentarios adicionales redactadas por el autor de la descripción. En cuanto a las notas provistas por los autores de este trabajo, se incluyen algunas consideraciones acerca de la sinonimia actual. Los ejemplares tipo son guardados en gabinetes metálicos especiales, separados de resto de material del herbario y documentados con una copia de la diagnosis original o su publicación. Como parte del Proyecto de Digitalización de las Colecciones Biológicas llevado a cabo por el Museo, la información completa de cada espécimen fue digitalizada y se encuentra disponible a través del portal web del Sistema Nacional de Datos Biológicos (SNDB) y la Infraestructura Mundial de Información en Biodiversidad (GBIF).

Palabras clave: Especímenes tipo, Cactaceae, Herbario BA, Argentina.

INTRODUCTION

The relevance of natural history collections (NHCs) has been largely recognized for its research and social importance (Lister *et al.*, 2011; Mares, 2009; Suarez & Tsutsui, 2004; Patterson, 2002). The Herbarium of the Museo Argentino

de Ciencias Naturales "Bernardino Rivadavia", BA Herbarium (Holmgren *et al.*, 1990), was initially established in 1853 as the Botanical National Collection of the former Museo Nacional de Historia Natural, representing the first official herbarium of Argentina. Nowadays it preserves more than 150,000 herbarium specimens

representing the main flora of the Argentinian phytogeographical provinces and covering all the vegetated areas of the country, but also collected abroad and obtained by exchange with many national and international botanical institutions. Of all specimen, about 101,500 belong to Vascular Plants, 50,000 to Cellular Plants and 800 represent nomenclatural published type specimens.

Lucien Leon Hauman-Merck (1880-1965) and Carlos Luis Spegazzini (1858-1926) were two of its first botanists researchers devoted to Argentinian Flora, describing and naming a great number of genera and species. Hauman is author of one of the first and most extensive local catalogues (Hauman & Vanderveken, 1917), and collected a number of antique specimens deposited at BA not only from Argentina but also from France. Spegazzini was undoubtedly an enthusiastic plant devotee, considering the large number of publications, extensive works on regional floras and several opuscles, many of them dedicated exclusively to cacti species distributed in Argentina. He had such a predilection for flowering plants and particularly for Cactaceae family that he established a great personal herbarium of vascular plants (LPS; Holmgren *et al.*, 1990) constituted by an unknown total number of specimens and ca. 700 type specimens, transferred to Museo de La Plata Herbarium (LP) in 1966 (Katinas *et al.*, 2004). Many Spegazzini's specimens are currently found in BA, BAF, BAB, and CORD herbaria in Argentina, and also in Europe and the United States. His type collection is rather incomplete since most of the Spegazzini's type sheets are missing (Torres *et al.*, 2006; Katinas *et al.*, 2000).

Castellanos and Lelong (1940) refer that the types of the majority of Spegazzini's cacti species were not preserved because they were represented by living specimens, cultivated at home, without labels on the plant itself. He generally made his notes on the spot of the plant. The living specimens cultivated in Spegazzini's residence represented approximately 125 different species (Spegazzini, 1900). Shortly before his death in 1926, Spegazzini donated his collection of live cacti to the Zoological Garden of La Plata. Later, the director of the Zoo at that time, Carlos Marelli, donated some "types" and other of these living specimens to the Museo Argentino de Ciencias Naturales of Buenos Aires (BA herbarium) (Katinas *et al.*, 2004; Castellanos & Lelong, 1940). It is also well documented by some photographs and the collection entrance books. Alberto C. Castellanos was born in Córdoba province,

Argentina, on December 11th, 1896. Son of the lieutenant colonel Julián Castellanos and Isolina Cámara, he was soon encouraged by his mother to study at the National University of Córdoba, where he met a still young botanist Federico Kurtz. The latter would have been responsible for initiating Castellanos into the study of plants and introducing him into the experience of field campaigns (Descole, 1969). Kurtz also encouraged Castellanos to continue his studies on Natural Sciences in Buenos Aires, by contacting him with C. Hicken, at that time professor at the Exact and Natural Sciences Faculty from University of Buenos Aires.

Castellanos finally obtained his postgraduate degree in 1923 after prolific researches in Cactaceae and Bromeliaceae botanical families. His doctoral thesis appeared two years later, constituting his first publication on Cactaceae (Castellanos, 1925). He worked with almost every vascular plant family, but left and invaluable legacy on regard to an understanding and knowledge of the cacti and bromeliads, being considered a worldwide authority. In 1925, he started working at the Museum as an assistant of Professor Hauman, at that time in charge of the Herbarium. Since by then the museum was annexed to the Natural Sciences Faculty from University of Buenos Aires, he could serve both as botanist researcher and enthusiastic university professor. Thus, he contributed to the education of botanists in several fields beyond phanerogames study: first cryptogamists, geobotanists and paleobotanists in the country were his disciples (Guarrera, 1972).

His first collection campaigns took place all over Argentina in company of Hauman (Singer, 1969), and were aimed to document the national flora. Subsequently, between 1947 and 1976, in collaboration with Roberto Capurro and/or Ofelia Castagnino, it was published in several volumes the first *Catálogo de Plantas Vasculares de la Argentina*. Thus, his collection specimens started to constitute the main core of the Herbarium. Castellanos prompted the adoption of a systematically organized herbarium following the classification system proposed by Engler regarding to botanic Orders and Families (Engler, 1964). Genera within families were arranged following De Dalla Torre criteria (Dalla Torre & Harms, 1907), also adopted by most herbaria in the world. While in charge of the Herbarium, as Head of the Botany Department from Museo Argentino de Ciencias Naturales, the Herbarium obtained the BA acronym according to the International

Association of Plant Taxonomists (IAPT). He occupied the Head of Botany Department position until 1948, when became honorary researcher. Later, he collaborated and directed the local seat of Intituto "Miguel Lillo" at Buenos Aires city. There, he organized the botanical collections, descriptions and illustrations published in the first general Flora of the country, *Genera et Species Plantarum Argentinorum* (1945-1955), leaded by Horacio Descole.

In 1957, he settled in Rio de Janeiro where he organized the Museo do Rio de Janeiro Herbarium, referred as Herbário "Alberto Castellanos" (GUA) and responsible for the edition of the scientific Journal "Albertoa". He also taught and contributed to the Rio de Janeiro Botanical Garden, city where he finally deceased on the September 5th, 1968.

Throughout his prolific career, he accounts for more than 26.000 plant specimens collected and more than 100 publications authored, a few of them in collaboration with his wife, Herminia Lelong. He worked at Universidad de Buenos Aires, Universidad Nacional de Tucumán, Universidad de Montevideo and Museo Nacional do Rio de Janeiro. In Brazil, he was awarded with the *Orden Nacional do Cruzeiro do Sul* and *Medalla al Mérito D. Joao VI*.

Among his legacy at BA herbarium, there is a vast cactus collection, initiated and developed on his own, almost unique in the remarkable feature of being partially preserved in special conservation liquid. The collection counts with 1.571 specimens, more than a half collected by Castellanos (857 specimens: 54, 6%), others donated by colleagues or obtained by exchange. Among them all, 57 represent type specimens (3, 6%), most of them from Argentina (51: 89,5%), where Castellanos collected 20 type specimens (39,2 %). There is one specimen from Brazil, another from Uruguay and four with unspecified place of collection. From Argentina, Córdoba is the province with more type specimens deposited (12 specimens: 23,5%) followed by La Rioja (9 specimens: 17,6%), San Luis and Catamarca (5 specimens each: 9,8%).

The way Castellanos used to work follows this pro-tocol: after field collection, vegetative parts of cactus were brought to the Museum (by then located at the old Alsina street building), and cultivated in the yard or at greenhouse. Part of the material corresponding either to vegetative or reproductive stages was then fixed, thus allowing the collection to account for vegetative parts, flower, fruit and seeds, while

preserving the original size and shape of specimens (Castellanos & Lelong, 1940). Fixation utilized formalin (formaldehyde 40%) then diluted once more at 40% in distilled water. The rest of the material was traditionally compressed and dried.

The present article is part of a series of taxonomic articles that have included 30 BA type specimens belonging to Potamogetonaceae, Alismataceae, Cyperaceae, Xyridaceae, Erocaulaceae (López, 1988) and 112 from Poaceae family (Arriaga et al., 2001). Here, we present a list of the 57 Cactaceae type specimens arranged by name of taxon with author, followed by the publication data (bibliographic citation), classification of type (holotypus, isotypus, paratypus, topotypus, neotypus or lectotypus, typus formae, isotypus varietatis, typus), and all the specimen information included in the original handwritten label. In cases of synonymy, currently accepted names are updated, accompanied by the proper reference to the author and date of the publication that supports the shift. Under observations, ecological information or additional comments written by the author of the description are given. Under notes, some consideration of our own, most regarding the current synonymy, are given.

In agreement with current development of museum-based informatics and its applications in biodiversity analysis (Edwards et al., 2000), the entire Cactaceae collection was digitized, as part of the broader Digitization of Biological Collections Project carried out by the Museum. The digitizing process of the BA included a data entry of about 24.000 specimens, and digitization of the complete information of Cactaceae has been achieved in 2008-2009. All this data has been saved to a Microsoft Acces database using Aurora, a special database manager software developed by the Museum (Rodríguez, 2007-2014), and is available online through the Sistema Nacional de Datos Biológicos (SNDB) website (<http://www.sndb.mincyt.gob.ar>), and the Global Biodiversity Information Facility (GBIF) (<http://www.gbif.org/>).

Original names: Original names of taxa appear in italics, followed by the standard form of author and literature data containing the original description. The list of names of species and infraspecific taxa belonging to Cactaceae follows "The International Plant Names Index" (IPNI; <http://www.ipni.org/>), The Flora del Conosur database (IRIS, <http://www2.darwin.edu.ar/>)

Proyectos/FloraArgentina/ fa.htm) and Missouri Botanical Garden database (Tropicos, <http://www.tropicos.org/>) and all other appropriate literature (e.g. publications authored by A. Castellanos where new taxa are described).

Exsiccata: Label transcription of each type specimen is given, including (in order, semicolon spaced): nomenclatural type classification (holotypus, isotypus, paratypus, topotypus, neotypus, etc.), BA number, name of collector and number (if present), date of collection (day/month/year), place of collection: «country; province; department; area or locality», type of preservation (dried or liquid conserved specimen). The country, political province and department of collection, was added by us when the label lacked of detailed data. When there was not a reference about the location or date of collection, this is referred as missing information.

Observations: Includes collector's or determinavit handwritten comments on the taxon or collection details.

Notes: Relevant consideration of our own and consulted cacti specialist (e.g. R. Kiesling).

When more than one type specimen referring to the same scientific name exist, each of them is listed below the original name (not repeated) and publication of each type specimen (cited once if all of them were described in the same publication).

Current names: Current names of taxa appear in bolded italics, following mainly Zuloaga & Morrone (1999), R. Kiesling publications, Flora del Conosur (<http://www2.darwin.edu.ar/Proyectos/FloraArgentina/fa.htm>) and Tropicos (<http://www.tropicos.org/>) databases; with references cited at the end. When the current accepted name agrees with the one given in the original description, this item is omitted and references correspond to the publication where the new taxon is described.

Notes, abbreviation and acronym list

«»: transcription of the interpreted locality information where specimen was collected.
 BA N °: specimen identification number at Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" Herbarium (BA).
 BAB: Herbarium of Instituto de Recursos Biológicos, Instituto Nacional de Tecnología

Agrícola (INTA).
 BAF: Herbarium of Museo de Botánica "Juan A. Domínguez", Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires.
 ca: circa (Latin), near.
 CORD: Herbarium of Museo Botánico, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad de Córdoba.
 DUPLO: duplicated sample.
 f., fo., FOR.: forma (Latin), formae (plural), form.
 F.: Frutos (Spanish), frutos.
 cult. in coll.: cultus in collectionem (Latin), cultivated in the collection.
 Inter [...] et [...]: Between [...] and [...] (e.g. "inter Portezuelo et La Merced").
 km: kilometers.
 (L): specimen preserved in conservation liquid.
 leg.: legit (Latin), collector.
 LIL: Instituto "Miguel Lillo" Herbarium.
 LP: Museo de La Plata Herbarium, Universidad Nacional de La Plata y Museo.
 L.R.: La Rioja province, Argentina.
 (L & S): specimen conserved both in liquid and dried.
 MO: Missouri Botanical Garden Herbarium.
 msm: metros sobre el mar (Spanish), meters above sea level.
 N°, no.: número (Spanish), number.
 n. sp., n. spec.: nova species (Latin), new species.
 NW, NE: Northwest, Northeast.
 Obs.: Observations.
 Ref.: author and date of publication where the current name of the taxon is accepted.
 Sa.: sierra (Spanish), mountain ranges.
 SI: Instituto de Botánica Darwinion Herbarium.
 (S): dried-preserved specimen.
 subsp.: subspecies.
 Terr.: Territorio (Spanish), territory.
 var., VAR.: varietas (Latin), variety.

LIST OF TYPE MATERIAL

Cereus silvestrii Speg., Anales del Museo Nacional de Buenos Aires 11 (ser. 3, 4): 483. 1905.
 TYPUS - BA N° 6297; leg.: Spegazzini, Carlos; date of collection missing.
 «Argentina; Tucumán» (L)
 Obs.: Specimen cultivated by C. Spegazzini, transferred before his death to La Plata Zoo and then donated to BA; registered in its entrance book 1932 as "Typus Spegazzini".
 = *LOBIVIA silvestrii* (Speg.) G. D. Rowley Ref.: Rausch, W. 1986.

Echinopsis oxygona (Link.) Zucc. ex Pfeiffer &

Otto, *Abbild. Beschr. Cact.* 1: t. 4. 1838.

TYPUS - BA N° 6298; name of collector and date of collection missing. (L)

Obs.: Specimen cultivated by C. Spegazzini, transferred before his death to La Plata Zoo and then donated to BA; registered in its entrance book 1932 as "Typus Spegazzini".

Note: Species not included in IPNI.

Gymnocalycium andreae (Boed.) Backeb. var. ***fechseri*** H. Till, *Gymnocalycium* 13(4): 378. 2000.

TYPUS VAR. - BA N° 80546; leg.: Fechser, H. (H. Till 1308); 1974; place of collection missing. (L)

Gymnocalycium andreae (Boed.) Backeb. var. ***longispinum*** Rausch, *Gymnocalycium* 13(4): 378. 2000.

HOLOTYPUS - BA N° 80547; leg.: Rausch, W. WR108, date of collection missing.

«Argentina; Córdoba; Sierra Grande, El Cóndor» (L)

Obs.: Existe en herbario una diapositiva.

Gymnocalycium andreae (Boed.) Backeb. subsp. ***matznetteri*** Rausch, *Gymnocalycium* 13(4): 379. 2000.

HOLOTYPUS - BA N° 80542; leg.: Rausch, W. 567a, date of collection missing.

«Argentina; Córdoba; Sierra Grande, Los Gigantes» (S)

Gymnocalycium bicolor Schütz

LECTOTYPUS - BA N° 28/252; leg.: Castellanos,

A.; 14/02/1928.

«Argentina; Córdoba; Cruz del Eje» (L)

Note: Lectotypification designed by Řepka R. (2014): Typification of the name ***Gymnocalycium bi-color*** Schütz with taxonomic-nomenclatorial notes. *Bradleya* 32: xx-xx (in press).

Gymnocalycium borthii Koop. ex H. Till var. ***viridis*** Neuhuber, *Gymnocalycium* 20(1): 705. 2007.

HOLOTYPUS - BA N° 92224; leg.: Neuhuber, G. GN89-85; 18/12/1989.

«Argentina; San Luis; Cerros del Rosario, 1000 msm» (S)

HOLOTYPUS - BA N° 92217; leg.: Neuhuber, G. GN89-85/476; 18/12/1989.

«Argentina; San Luis; Cerros del Rosario; 1000 msm» (L)

TROPICOS (MO Herbarium) taxonomic databases, ***Gymnocalycium borthii*** Koop. ex H. Till is synonym of the accepted name ***Gymnocalycium gibbosum*** (Haw.) Pfeiff. ex Mittler, but any ***viridis*** Neuhuber variety is registered.

Gymnocalycium capillense (Schick) Hosseus., *Revist. Cent. Estud. Farm. Córdoba* 2(6): 16. 1926. NEOTYPUS - BA N° 92216; leg.: Fechser, H. s.n.; 1961.

«Argentina; Córdoba; Sierra Grande, Los Gigantes» (S)

Ref.: Till, H. 2003a-b; Metzging, D. *et al.* 1995; Meregalli, M. 1985.

Gymnocalycium capillense (Schick) Hosseus var. ***sigelianum*** H. Till, *Gymnocalycium* 16(1): 497. 2003.

NEOTYPUS - BA N° 92214; leg.: Till, H. HT58; date and place of collection missing. (L)

Gymnocalycium castellanosi Backeb. var. ***rigidum*** H. Till, *Gymnocalycium* 19(2): 670. 2006.

HOLOTYPUS - BA N° 92218; leg.: Till, H. 900;16/09/1961.

«Argentina; La Rioja; Belgrano; NW del Departamento Belgrano» (S)

Gymnocalycium coloradense F.

Berger, *Gymnocalycium* 19(4): 693. 2006.

HOLOTYPUS - BA N° 92221; leg.: Berger, F. 97-72/291; 09/11/1997.

«Argentina; La Rioja; Independencia; Sierra de los Colorados, in parte australi, 700-900 msm» (S)

Gymnocalycium 19(4): 691. 2006.

HOLOTYPUS - BA N° 92222; leg.: Berger, F. Be97-72/291; 09/11/1997.

«Argentina; La Rioja; Independencia; Sierra de los Colorados, in parte australi; 700-900 msm» (L)

Gymnocalycium 19(4): 691. 2006.

PARATYPUS - BA N° 92272; leg.: Berger, F. Be01-271/1237; 17/11/2001.

«Argentina; La Rioja; Independencia; Sierra de los Colorados, in parte australi; 700-900 msm» (L)

Gymnocalycium delaetii Hosseus f. ***antherosacos*** Neuhuber

NEOTYPUS FOR. - BAN° 80545; leg.: Neuhuber, G. GN88-41/72 (WU 1312); date of collection missing.

«Argentina; Salta; Alemania» (L)

Note: According to IPNI, the type details are: *Gymnocalycium delaetii* (K. Schum.) Hosseus fo. *antherosacos* F. Ritter ex Neuhuber, *Gymnocalycium* 14(4): 423. 2001.

HOLOTYPUS; G. Neuhuber GN88-41; 02/05/1988; «Argentina; Salta; Australo-occidentalier urbis Alemania in solo arenoso Sub fructibus, 1400 msm».

Gymnocalycium erolesii Neuhuber & Bertch, *Gymnocalycium* 15: 475. 2002.

TYPUS - BA N° 81420; name of collector missing; 24/11/2000.

«Argentina; Santa Fe; NE Vera» (L)

Obs.#1: typus pars 2. Pfl-Nummer: PE0025.

Fundort: NE Vera, Santa Fe.

Obs.#2: typus pars 2. Pfl-Nummer: PE0025.

Fundort: between Vera and Malabrigo, Santa Fe.

Note: Samples correspond to the same specimen distributed in two bottles, as both share the same number PE0025.

= *Gymnocalycium schroederianum* Osten subsp. *boessii* R. Kiesling, Marchesi & O. Ferrari Ref.: Kiesling, R., Marchesi, E. & Ferrari, O. 2002. Note: According to IPNI, the BA holotype details are:

Gymnocalycium erolesii Neuhuber & C. A. L. Bercht, *Gymnocalycium* 15(4): 475. 2002.

HOLOTYPUS; leg.: Eroles, P.

PE00-25; 24/11/2000.

«Argentina; Santa Fe; inter urbium Vera et Malabrigo, km 742 viae "ruta internacional no. 11"»

Gymnocalycium gaponii Neuhuber, *Gymnocalycium* 14(4): 410. 2001.

TYPUS - BA N° 80543; leg.: Neuhuber, G. 91-362/1222.

«Argentina; Córdoba; San Lorenzo» (L)

Note: According to IPNI, the holotypus details are:

Gymnocalycium gaponii Neuhuber, *Gymnocalycium* 14(3): 410. 2001.

leg.: G. J. A. Neuhuber 91-362/1222; 07/12/1991; «Argentina; Córdoba; prope Villa Rafael Benegas, 900 msm»

PARATYPUS - BA N° 80544; leg.: Neuhuber, G. 96-850/2783; 25/10/1946.

«Argentina; Córdoba; San Lorenzo, Sierras de San Luis» (L)

Note: Date of collection probably wrong.

Gymnocalycium immemortatum A. Cast. & Lelong, *Lilloa* 4(2): 195-196. 1939.

HOLOTYPUS - BA N° 30526; leg.: Castellanos, A. & Lelong; 06/01/1939.

«Argentina; Córdoba; Punilla; Capilla del Monte, El Zapato» (L & S)

Obs.: Determinavit R. Kiesling et OF/88: *G. valnicekianum*.

= *Gymnocalycium mostii* (Gürke) Britton & Rose

Ref.: Till, H. & Amerhauser, H. 2002; Metzging, D. et al. 1995; Meregalli, M. 1985; Britton, N.L. & Rose, J.N. 1918.

Gymnocalycium jochumii var. *jugum* Neuhuber, *Gymnocalycium* 18(1): 606, figs. 14-15. 2005.

HOLOTYPUS - BA N° 92219; leg.: Neuhuber, G. GN96-891/2931; 09/10/1996.

«Argentina; La Rioja; Chilecito; Sierra de Sañogasta; 2300 msm» (L)

Obs.: L.Nr.: 3299. Fundort: Southern end of Sa. de Sañogasta, L.R.

Gymnocalycium multiflorum (Hook) Britton & Rose var. *ourselianum* Cels ex H. Till & W. Till, *Gymnocalycium* 20(2): 719, figs. 13-16. 2007. HOLOTYPUS - BA N° 92220; leg.: Rausch, W. s.n. ex coll. H. Till 3541; 10/06/1994.

«Argentina; Loco exacto ignoto» (S)

Note: According to IPNI, the taxa is *Gymnocalycium multiflorum* Britton & Rose var. *ourselianum* H. Till & W. Till. This var. is not considered as valid in Tropicos.

Ref.: Till, H. & Till, W., 2007.

Gymnocalycium nigriareolatum Backeb. var. *densispinum* Backeb. ex H. Till, *Gymnocalycium* 11(3): 255. 1998.

HOLOTYPUS VAR. - BA N° 79588; leg.: Fehser, H. s.n.; 1963.

«Argentina; Sine loco exacto» (S)

Obs.: 1998 cult. in coll. H. Till #HT607.

= *Gymnocalycium hybopleurum* (K. Schum.) Backeb.

Ref.: Till, H. & Till, W. 1995, 1994; Backeberg, C. & Kunth, F.M. 1935.

Note: According to IPNI, type details are:

HOLOTYPUS; leg.: H. Till HT 607; sine loco exacto, coll. H. Fehser s.n., 1963, cult. in coll. H. Till. Remarks: Backeberg (*Cactaceae* 3: 1759. 1959) published this name invalidly. The type collection, originally collected by H. Fehser in 1963, flowered in cultivation.

Gymnocalycium nigriareolatum Backeb. var. *simoi* H. Till, *Gymnocalycium* 11(3): 258. 1998. H. BO 126; 1972.

«Argentina; Catamarca; Paclín; Palo Labrado, inter Portezuelo et La Merced» (S)
Obs.: 1998 cult. in coll. H. Till #HT1227

Gymnocalycium nigriareolatum Backeb. f. ***carmineum*** H. Till, *Gymnocalycium* 11(3): 255. 1998.

HOLOTYPUS FOR. - BA N° 79587; leg.: Amerhauser, H. HA255-2; 08/10/1989
«Argentina; Catamarca; Western slopes of the Sierra de Ancasti 600-700 msm» (S)

Gymnocalycium ragonesei A. Cast., *Lilloa* 23: 5. 1950.

ISOTYPUS - BA N° 80073; leg.: Ragonese, A.; 13/12/1949.

«Argentina; Catamarca; Salinas Grandes, entre km 969 y Totoralejos» (L)

Obs.: Specimen LIL16120 DUPLO

[***Gymnocalycium rhodantherum*** (Boed.) H. Till], *Gymnocalycium* 18(1): 602. 2005. NEOTYPUS - BA N° 92215; leg.: Till, H. 87-67; 18/10/1987.

«Argentina; La Rioja; Famatina; km 525 entlang der Ruta Nacional südlich Pituil, 1250 msm» (S)

Obs.: Inval. Art. 9.20. *Gymnocalycium* 20(1): IV (2007)!.

Note: R. Kiesling (2005) considers this is a doubtful taxon.

[***Gymnocalycium rhodantherum*** (Boed.) H. Till var. ***cinerascens*** H. Till], *Gymnocalycium* 17(3): 584. 2004.

HOLOTYPUS - BA N° 92213; leg.: Till, H. 90-308; 07/02/1990.

«Argentina; La Rioja; Prope Carrizal; 1800 msm» (S)

Note: Kiesling (2005) considers this is a doubtful taxa.

Gymnocalycium schickendantzii subsp. ***bergeri*** Neuhuber, *Gymnocalycium* 14(4): 420. 2001.

HOLOTYPUS - BA N° 80541; leg.: Neuhuber, G. GN90-308; 25/12/1990. (L & S)

Obs.: Specimen preserved in liquid: «Argentina; Salta; In silvis collium circa Balboa, 700 msm»

Dried specimen: 1391 GN 90-308 «Los Baños, Salta».

Note: part of the specimen was dried and the other part conserved in liquid.

Ref.: Neuhuber, G.J.A, 2001b.

Gymnocalycium schroederianum Osten, *Anales Museo Nacional Montevideo* (ser. 2, 5): 60, pl. 49-50. 1941.

ISOTYPUS - BA N° 24/1133; leg.: Schröder, J. s.n.; 01/04/1922.

«Uruguay; Río Negro; Cerca de Nueva Mehlem, en limo pampeano a orillas del Río Uruguay» (S)

Obs.: in limo pampeano ad ripam fluminis Uruguay, prope Nueva Mehlem.

Ref.: Kiesling, R. 2005; Kiesling, R. 1987; Osten, C. 1941.

Gymnocalycium tanningaense Piltz subsp. ***fuschilloi*** Neuhuber, *Gymnocalycium* 20(1): 705. 2007.

HOLOTYPUS - BA N° 92223; leg.: Neuhuber, G. GN90-240; 15/12/1990.

«Argentina; Córdoba; Meridionaliter de Arroyo San Antonio; 630 msm» (S)

Hariota epiphylloides var. ***bradei*** Porto & A. Cast., *Rodriguésia* (5)14: 354. 1941.

ISOTYPUS VAR. - BA N° 20308; leg.: Brade 20; 20/07/1937.

«Brasil; São Paulo; Serra Bocaina, sertão do Rio Vermelho» (L)

Obs.: R.n. Jardim Bot. 8451

= ***Hatiara epiphylloides*** subsp. ***bradei*** (Porto & A. Cast.) Barthlott & N.P. Taylor

Ref.: Barthlott & Taylor, 1995.

Lobivia schreiteri A. Cast., *Monatsschr. Deutsch. Kakteen-Ges.* 2(3-4): 59. 1930. HOLOTYPUS - BA N° 29/41; leg.:

Castellanos,

A.; 20/07/1929.

«Argentina; Tucumán; Portezuela de la Ciénaga» (L & S)

Maihuenia valentini Speg., *Anales del Museo Nacional de Buenos Aires* 7 (ser. 2, 4): 289. 1902.

ISOTYPUS - BA N° 17397; leg.: Valentini, Juan 48; 11/11/1897.

«Argentina; Chubut; Rawson; Trelew, Cima Alta» (S)

Obs.: «Terr. del Chubut. Trelew. Cima Alta».

= ***Maihuenia patagonica*** (Phil.) Britton & Rose

Ref.: Leuenberger, B. E. 1997; Kiesling, R. 1988; Britton, N.L. & Rose, J.N. 1919.

Notocactus mammulosus (Lem.) A. Berger var. ***pampeanus*** (Speg.) A. Cast. & Lelong, *Gen. Sp. Pl. Argent.* 1: 100. 1943.

TOPOTYPUS - BA N° 30525; leg.: Castellanos, A. & H. Lelong; 06/01/1939.

«Argentina; Córdoba; Capilla del Monte, El Zapato» (L)

= *Parodia submammulosa* (Lem.) R. Kiesling subsp. *submammulosa*

Ref.: Kiesling, R. 1995.

Opuntia anacantha Speg., Bull. Mus. Hist. Nat. (Paris) 10: 391. 1904; Anales del Museo Nacional de Buenos Aires, 11: 513. 1905. ISOTYPUS - BA N° 6295; name of collector, and date of collection missing.

«Argentina, Chaco Austral» (L)

Note: Specimen collected in Chaco Austral region and then cultivated by C. Spegazzini, transferred before his death to La Plata Zoo and then donated to BA; registered in its entrance book 1932 as "Typus Spegazzini".

Ref.: Kiesling, R. 1998.

Opuntia geometrica A. Cast., Kakteenkunde 9: 192, 1934.

HOLOTYPUS - BA N° 30/748; leg.: Castellanos, A.; 24/01/1930.

«Argentina; Catamarca; Tinogasta; Angostura de Guanchín» (L & S)

= *Tephrocactus geometricus* (A. Cast.) Backeb.

Ref.: Kiesling, R. 1984.

Opuntia montevidensis Speg., Anales del Museo Nacional de Buenos Aires 11 (ser. 3, 4): 515. 1905. TYPUS - BA N° 6299; name of collector, date and place of collection missing. (L)

Note: Specimen collected and then cultivated by C. Spegazzini, transferred before his death to La Plata Zoo and then donated to BA; registered in its entrance book 1932 as "Typus Spegazzini".

= *Opuntia aurantiaca* Lindl.

Ref.: Kiesling, R. 2005.

Opuntia paediophila A. Cast., Lilloa 23: 7. 1950. HOLOTYPUS - BA N° 30/759; leg.: Castellanos, A.; 17/02/1930.

«Argentina; La Rioja; San Blas de los Sauces; Alpasinche» (L)

PARATYPUS - BA N° 80074; leg.: Ragonese, A.; 19/10/1946.

«Argentina; Córdoba; Cruz del Eje; Salinas Grandes, Mansilla, km 907» (L)

Obs.: Specimen LIL16122 DUPLO

PARATYPUS - BA N° 28/643; leg.: Gómez; 07/1928.

«Argentina; La Rioja; Rosario Vera Peñaloza; Chepes» (L)

= *Tephrocactus aoracanthus* (Lem.) Lem.

Ref.: Kiesling, R. 1984.

Opuntia puelchana A. Cast., Physis 9: 101. 1928. HOLOTYPUS - BA N° 27/195; leg.: Castellanos, A.; 10/01/1927.

«Argentina; La Pampa; Lihuel Calel; Pampa Central; Lihué-Calel» (L)

= *Cylindropuntia tunicata* (Lehm.) F.M. Knuth

Ref.: Hoffmann, A. E. & Walter, H. E. 2004; Backeberg, C. 1958.

Opuntia ruiz-lealii A. Cast., Lilloa 9: 213. 1943. TOPOTYPUS - BA N° 36992; leg.: Castellanos, A.; 06/01/1941.

«Argentina; Mendoza; Las Heras; Valle de Uspallata» (L)

= *Puna clavarioides* (Pfeiff.) R. Kiesling

Ref.: Kiesling, R. 1982.

Opuntia salagria A. Cast., Lilloa 27: 85-89, 1953. SINTYPUS - BA N° 27/196; leg.: Castellanos, A.; 05/01/1927.

«Argentina; La Pampa; Capital; Pampa Central, Santa Rosa, El Médano» (L)

SINTYPUS - BA N° 26/2363; leg.: Castellanos, A.; 05/12/1926.

«Argentina; Buenos Aires; Campana; Campana, en las Barrancas» (L)

SINTYPUS - BA N° 26/1849; leg.: Castellanos, A.; 04-07/10/1926.

«Argentina; Santa Fe; Rosario; Rosario, en los barrancos» (L)

SINTYPUS - BA N° 25/855; leg.: Castellanos, A.; 25/02/1925.

«Argentina; San Luis; Belgrano; Nogolí, Paso Ancho» (L)

SINTYPUS - BA N° 25/2619; leg.: Castellanos, A. 843; 12/11/1925.

«Argentina; San Luis; Chacabuco; Renca» (L)

SINTYPUS - BA N° 25/2615; leg.: Castellanos, A.; 13/11/1925.

«Argentina; San Luis; Chacabuco; Renca» (L)

SINTYPUS - BA N° 32594; leg.: Fortuna; 11/1939.

«Argentina; La Pampa; Loventué; Pampa Central, Loventuel» (L)

SINTYPUS - BA N° 33033; leg.: Ragonese, A.; 20/03/1940.

«Argentina; Santa Fe; 9 de Julio; Villa Minetti» (L)

SINTYPUS - BA N° 54768; leg.: Castellanos, A.; 20/11/1951.

«Argentina; Buenos Aires; Campana; Campana» (L & S)

Obs.: F. purpúreos.

SINTYPUS - BA N° 30541; leg.: Castellanos, A.; 29/01/1939.

«Argentina; Córdoba; San Javier; Pedanía La Paz, Quebrada del Cristal de Roca» (L)

SINTYPUS - BA N° 24/883; leg.: Castellanos, A.; 02/1924.

«Argentina; Córdoba; Valle de los Reartes» (L)

SINTYPUS - BA N° 24/1344; leg.: Castellanos, A.; 21/07/1924.

«Argentina; Córdoba; Punilla; Dique San Roque» (L)

TOPOTYPUS - BA N° 29708; leg.: Castellanos, A. 19534; 20/11/1951.

«Argentina; Buenos Aires; Campana; Barrancas de Campana» (S)

= *Opuntia megapotamica* Arechav.

Ref.: Kiesling, R. 2005.

Opuntia weberi Speg. var. *dispar* A. Cast. & Lelong, Jahrb. Deutsch. Kakteen-Ges. 1: 51. 1935/36.

HISTORICAL MATERIAL used on the illustration and extended botanical description of the variety, authored by Castellanos & Lelong (1944). *Lilloa* 10: 470.

BA N° 13514; leg.: Peirano; 27/12/1933.

«Argentina; Catamarca; Santa María; Andalhualá» (S)

Obs.: Fruto rojo.

= *Tephrocactus weberi* (Speg.) Backeb. var. *weberi*

Ref.: Kiesling, R. 1984; Backeberg, C. & Knuth, F. M., 1935.

Pterocactus araucanus A. Cast., Rev. Fac. C. Agr. Univ. Nac. Cuyo 8(2): 3-5. 1960-61.

HOLOTYPUS - BA N° 80061; leg.: Castellanos, A. 16812; 14/02/1945.

«Argentina; Chubut; Mesetas cerca del Río Hualjaina» (L)

Obs.: Specimen LIL15301 DUPLO

Rev. Fac. C. Agr. Univ. Nac. de Cuyo 8(2): 3-13. 1960-61.

PARATYPUS - BA N° 13471; leg.: Ragonese, A.; 01/1935.

«Argentina; Neuquén; Zapala; Zapala» (L)

Ref.: Kiesling, R. 1982; Castellanos, A. 1960.

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