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The Cárdenas type specimens of *Cactaceae* names in the herbarium of the Instituto Miguel Lillo, Tucumán, Argentina (LIL)

Abstract

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A list of type specimens of *Cactaceae* names in the collection of the Bolivian botanist Martín Cárdenas (1899-1973) deposited in the herbarium of the Instituto Miguel Lillo in San Miguel de Tucumán, Argentina, is provided. Biographical data, unresolved questions concerning the fate of the Cárdenas collections and incongruences concerning the collecting dates are briefly discussed. Of the 176 specific and 18 infraspecific names published from Cárdenas's material of *Cactaceae,* a total of 73 type specimens was located at LIL. The fate of the missing specimens remains unknown.

Introduction

The Bolivian botanist Martín Cárdenas (1899-1973) is widely known for his excellent, mostly Bolivian plant collections, more than 230 published new plant taxa and numerous publications on plants of ethnobotanical and economic importance. Biographical data have been published by Cárdenas himself (Cárdenas 1967, 1973) as well as by Vargas (1973), Whitaker (1974), Lourteig (1975), Candia (1999) and Rivas Graña (1991), brief obituaries by Anonymous (1973a, 1973b, 1973c, 1973d, 1973e, 1973f), Diers (1973) and Vásquez (1973).

Regarding *Cactaceae,* some information on species described by Cárdenas and further biographical details were provided by Lourteig (1975) and Gioda & Arrázola (1997, 2001). Numerous comments on his cactus discoveries and international contacts can be found in Cárdenas's detailed autobiographical account of his botanical activities, his life and travels in Bolivia and abroad (Cárdenas 1973).

Cárdenas kept his first set of herbarium collections, c. 6500 specimens of Bolivian plants, as a personal herbarium. According to his will it was donated after his death in 1973 to the Instituto Miguel Lillo (herbarium LIL) in San Miguel de Tucumán, Argentina (comprising c. 6000 herbarium specimens according to Vargas 1973: 300, and http://www.lillo.org.ar/botanica/herbarios/infofanerogamico.html, accessed 11.3.2004). Whitaker (1974) mentions also field notes and books

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donated to LIL. The sources cited do not provide any additional details about the herbarium donation. This is especially unfortunate since, at least for the cacti, not all expected material has been located at LIL. It seems reasonable to suppose that only part of Cardenas's personal herbarium was eventually given to LIL and that other parts remained in Bolivia (perhaps at BOLV). Our attempts to verify this assumption proved to be fruitless until now, however.

During Cárdenas's life time, numerous duplicates of his herbarium collections were deposited in the United States National Herbarium (US). Funk & Mori (1989) list altogether 12 herbaria where Cárdenas specimens were deposited (AMES, BOLV, COCH, F, GH, ILL, K, LIL, NY, S, SI, US, abbreviations according to Holmgren & al. 1990). Lanjouw & Stafleu (1954) give specimen numbers for F (403), NY (177) and US (1536).

From 1973 up to now, doubts on the whereabouts of numerous type specimens of the Cárdenas collection persist. As the material at LIL could not immediately be mounted and made accessible, relevant parts of it were not available to monographers for many years. The work on the collection is currently still in progress, with the aim to keep the Cárdenas collection separate from the general collection. This process includes mounting of hitherto inaccessible material as well as extraction of those sheets that were previously incorporated into the general collection (Figueroa, pers. comm., Dec. 2003). The Cárdenas type specimens are kept in the separate type collection.

Martín Cárdenas and the *Cactaceae*

Cárdenas was the first collector of Bolivian plants to pay particular attention to *Cactaceae*. The earliest collections are dated c. 1932, most non-type specimens were collected between 1941 und 1949. Extant type specimens belong to collections made between 1947 and 1962.

Cárdenas published his results in several dozens of usually short contributions in various journals, including several important specialized cactus journals (such as Cactus (Paris) and U.S. and British Cactus and Succulent Journals). Some of his contributions were published in serialized form with numerous continuations. The very first paper on Bolivian cacti appeared in 1950 in the Argentinian journal Lilloa (Cárdenas 1950) as "Cactáceas nuevas de Bolivia I", but the series numbering was not continued, later contributions being frequently titled "Notas Cactológicas de Bolivia".

Cárdenas apparently tried to document in his collection all species he could distinguish in the field in Bolivia but in later years preferably collected material as basis for the description of new taxa. Collections of the same species at different localities and of geographically widespread taxa from different regions are the exception. In his publications, Cárdenas only rarely discussed the known taxa and old names. He rarely referred to older literature and apparently described all those of his collections as new taxa that could not be identified with the monograph of Britton & Rose (1919-23) and the early publications of Backeberg, in particular the Blätter für Kakteenforschung (Backeberg 1934-37). Cárdenas explicitly mentioned these two publications as working base for his studies in *Cactaceae* that started in 1940 (Cárdenas 1973: 5).

Cárdenas visited numerous herbaria and private cactus collections (Marnier, Riviere de Caralt) during his travels to Europe and the United States. He appears to have had contact with Backeberg (in c. 1949) at least in the case of the type specimen of *Neocardenasia herzogiana,* which is annotated by Backeberg. In 1966, Cárdenas planned to write a monograph of Bolivian cacti (Cárdenas 1967).

Cárdenas *Cactaceae* specimens at LIL

Repeated requests for the study of type specimens of *Cactaceae* names and the particular richness of the Cárdenas collection of *Cactaceae* led to a preferential extraction of most material of this family by herbarium staff at LIL. During a visit to LIL in March 2003, the second author was able to obtain a brief overview of the extant material in the general herbarium, the type collection

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and the Cárdenas collection. This showed that only a fraction of all material to be expected at LIL is actually extant there. More than half of the Cárdenas material of *Cactaceae* at LIL are type specimens (73 types vs. 63 non-types).

The large percentage of type specimens (over 50 %) and the fundamental importance of this material for both monographic and flora studies as well as checklists encouraged the authors to undertake a complete listing of the type material of Cárdenas *Cactaceae* at LIL. This was greatly facilitated by the first author's database containing information of protologues of all Cárdenas names of *Cactaceae*. The specimen label data at LIL were copied in a joint effort of both authors during a visit at LIL in November 2003.

Of the 176 specific and 18 infraspecific names published on the basis of Cárdenas material of *Cactaceae,* only one is not by Cárdenas himself (*Neocardenasia herzogiana* Backeb.). At LIL, a total of 73 type specimens has been located, i.e. roughly 1/3 of all expected type specimens. Currently, only about 52 species and one infraspecific taxon are accepted (Anderson 2004) at the rank as published by Cárdenas. The same source accepts further 42 taxa (32 species, 10 infraspecific ranks) but in the form of later combinations.

Nothing is known yet about the possible location of the hitherto missing specimens cited for the "Herbarium Cardenasianum" in publications of Cárdenas. The list of the material at LIL is here published and the "missing" material should be sought after in subsequent studies. Eventually, a complete listing of the holdings at US and of material possibly still remaining elsewhere may contribute additional information to elucidate the fate of the Cárdenas collections. This was beyond the scope of the present paper.

The quality of the *Cactaceae* specimens prepared by Cárdenas merits a comment. Considering the enormous difficulty of preparing and processing complete and representative specimens, most of the material is remarkably good. It is often complemented with black and white photographs of the habit of the plant, sometimes (but not necessarily) showing the material prior to processing. The photographs suggest that at least some of the material was probably taken along alive and processed when it flowered in cultivation.

Almost all specimens (types and non-types) at LIL have preprinted labels filled out by hand. All these labels, which we identify as "original labels", have the heading "Herbarium Cardenasianum". The pre-printed text is in English, the handwritten text in Spanish or English, and this is also the reason for the mixture of languages encountered in the type specimen list below.

Cárdenas numbers are obviously accession numbers of Cárdenas's herbarium, but have at the same time also been used in a similar way as collection numbers. In some cases, a collector's name other than Cárdenas is indicated in the protologue and/or on the labels (e.g., Candia, Cañigueral, Corro, Meneses, Randall, Rocha, Vidaurre).

Types are usually indicated as "Type", "Tipo", "Typus", etc., and the specimens annotated in this manner are interpreted as representing the holotypes of the relevant names. This interpretation is based on the fact that (1) the protologues cite the type as in the "Herbarium Cardenasianum", i.e. Cárdenas's personal herbarium, and (2) that this personal herbarium was donated to LIL (see introduction).

For many taxa, Cárdenas's protologues cite a "clonotype" as having been deposited at US. "Clonotype" is not a term in use today for types under the ICBN (Greuter & al. 2000). The use of the term by Cárdenas might indicate that most if not all of his new names were based on cultivated material. The "clonotypes" would therefore need to be assessed individually in each case.

A special problem is posed by numerous incongruences concerning the collecting dates. The date given in the protologue is often at variance with the date information on the holotype label at LIL, and/or the date information in the type database at US (as accessible through the Web in February 2004). The implications of these differences have not yet been fully explored. It could well be, however, that Cárdenas did not carefully discriminate between the actual collecting date (or the accession date of the plant when it was collected by someone else) and the date of preservation of the specimen.

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In 24 cases the collecting date indicated on the label of the holotype specimen deviates from the protologue. In 12 cases the specimen date is between one month and up to six years prior to that indicated in the protologue, e.g., one month in *Frailea chiquitana,* one year in *Rebutia candiae,* three years in *Echinopsis vallegrandensis* and six years in *E. coronata*. In *E. comarapana* there are two collecting dates in the protologue. The earlier one coincides with the date on the specimen label.

This suggests that the specimen bears the original collecting date, whereas the protologue may indicate the date of preservation. In 12 cases, however, the specimen date is one month to eight years later, e.g., one month in *Cleistocactus ressinianus,* one year in *C. brookeae,* three years in *Rebutia candiae,* and eight years in *Echinopsis torrecillasensis*.

For *Trichocereus camargensis* there are two collecting dates in the protologue, the later one (three years) coincides with the date on the specimen label.

In these cases one might assume that the specimen bears the date of preservation, whereas the original collecting date is indicated in the protologue. The case of *Echinopsis torrecillasensis* is mentioned in Cárdenas (1973: 179 "... a Torrecillas, donde en 1947 cuando iba a la Playa Ancha, encontré un pequeño *Echinopsis* de flores rojas que por falta de material vivo, aun no lo describí. Mis comisionados, no encontraron este cacto que me trajo varios años después, el Sr. Corro, que lo halló. … Yo mismo fuí a este lugar y recogí muchos ejemplares. Describí este nuevo taxón como *Echinopsis torrecillasense*."). Here, Cárdenas mentions that he discovered the plant in 1947 but did not describe it for the lack of live material, years later, after he received plants from Mr Corro, he visited the second locality, collected many specimens and only then published the new species as *E. torrecillasensis*. The material located at LIL is thus from the second collection (1955).

The implications of these deviations are not yet fully understood. In numerous cases, the (undated) photographs added to the specimens show plants in their habitat, while others are of flowering plants in cultivation. The respective dates are thus impossible to ascertain at this stage, if ever. Whether the photographs on the herbarium sheets correspond to the illustrations published in the protologues was beyond the scope of the present inventory. In the case of *Cleistocactus ressinianus,* the published habitat illustration is identical to the photograph on the specimen. In the case of *C. reae,* the protologue includes a habit illustration from the habitat, while the sheet at LIL has a photograph of a flowering stem (including scale) and otherwise only flowers. It is impossible to decide whether the flowers are those illustrated on the accompanying photograph. It becomes clear on the basis of these casual observations that each case will have to be evaluated individually, and that it is highly unclear to what extent the photographs on the type specimens correspond to the preserved material. The possibilities that the photographs illustrate other collections than those preserved, or have even been added later, cannot be ruled out.

Scope of the list

The list is organized alphabetically according to the basionym name, for which a full bibliographic reference is given. The entries contain the following elements:

(1) Herbaria in which type material has been located or which have been cited in the protologue are listed with their acronyms. The existence of "clonotypes" cited in the protologue as deposited at US was checked with the internet version of the type database, and if no material is shown in this database, this is indicated with a question mark (see, e.g., *Aylostera krugerae*).

(2) The complete available information from the protologue and original herbarium labels. Double quotes are used to indicate information copied verbatim from any of these sources. Minor differences between the protologue and the original label at LIL are frequent.

(3) The actual information on the holotype specimen, where the herbarium acronym is followed by the accession number, the type status, and a short-form indication of the material present (rad = root; corp = body; ar = areole; sp = spines; al = flower bud; fl = flower; fr = fruit; sem = seeds; ic = photograph [sometimes followed by an indication which plant parts are illustrated]; entries in brackets indicate fragmentary material).

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List of Cárdenas type specimens of *Cactaceae* names at LIL

Acanthorhipsalis incahuasina Cárdenas in Cactus (Paris) 5(34): 127, ills. 1952
Notes: Through a printer's mistake, the name *A. paranganiensis* was substituted for the correct epithet; this was later corrected and a correction slip was supplied to cover the mistake.
Type: *Cárdenas 4857* – Bolivia: Santa Cruz, Cordillera, "'Cuesta de Incahuasi' on the road Lagunillas - Muyupampa" [protologue, translated] / "Cuesta de Incahuasi" [holotype], 1200 m, 2.1951 (type herbaria: LIL, LE [clonotype, cf. Byalt in Sukkulenty 3(1-2): 65. 2000], US).
LIL 531584 (holotype): corp, ar, sp, fr.

Acanthorhipsalis paranganiensis Cárdenas in Cactus (Paris) 5(34): 126-127, ills. 1952
Type: *Cárdenas 4856* – Bolivia: Cochabamba, Ayopaya, "Hacienda Parangani, 2600 m" [protologue] / "Parangani, 2700 m" [holotype], 10.1947 (type herbaria: LIL, US).
LIL 531577 (holotype): corp, ar, sp, fl, ic.

Aylostera krugerae Cárdenas in Cactus (Paris) 12(57): 260-261, ills. 1957
Notes: Sphalm. 'krugerii', and named for Mrs A. M. Kruger [also spelled 'Krüger' or 'Krueger' later].
Type: *Cárdenas 5495* – Bolivia: Cochabamba, Cercado, "near Tupuraya" [protologue, translated] / "Tupuraya (Tunari)" [holotype], 2568 m, 2.1954 [collecting date given as Feb. 1954 in the protologue but the holotype at LIL is dated March 1956] (type herbaria: LIL, US?).
LIL 531541 (holotype): fl, ic (rad, corp, ar, sp, fl).

Bolivicereus samaipatanus Cárdenas in Cact. Succ. J. (US) 23(3): 91-93, ills. 1951
Type: *Corro s.n.* in *Cárdenas 4395* – Bolivia: Santa Cruz, Florida, "'El Fuerte' de Samaipata, 1890 m" [protologue] / "El Fuerte de Samaipata / El Fuerte - Samaipata, 1800 m" [holotype], 5.1948 (type herbaria: LIL, US).
LIL 531550 (holotype): corp, ar, sp, fl.

Bolivicereus samaipatanus var. *divimiseratus* Cárdenas in Nation. Cact. Succ. J. 6(1): 9, ills. 1951
Type: *Cárdenas 4569* – Bolivia: Santa Cruz, Chiquitos, "near the Cerro San Miserato" [protologue, translated] / "Cerro San Miserato" [holotype], 900 m, 2.1950 (type herbaria: LIL, US).
LIL 531545 (holotype): corp, ar, sp, fl.

Bolivicereus samaipatanus var. *multiflorus* Cárdenas in Cact. Succ. J. (US) 23(3): 93-94, ills. 1951
Type: *Cárdenas 4395a* – Bolivia: Santa Cruz, Florida, "at 'La Angostura'" [protologue] / "Angostura, 900 m" [holotype], 9.1949 [the type number is given as "4395" in the protologue (which is the same number as that for *B. samaipatanus*) but the holotype label clearly gives *"4395a"* and *"4395(a)"* respectively; the date is given as Sep. 1949 in the protologue but as May 1949 on the holotype at LIL] (type herbaria: LIL, US).
LIL 531549 (holotype): corp, ar, sp, fl, ic (corp,fl).

Castellanosia caineana Cárdenas in Cact. Succ. J. (US) 23(3): 90-91, ills. 1951
Type: *Cárdenas 4391* – Bolivia: Cochabamba, Tarata, "near Jatun Pampa, Río Caine, 1180 m" [protologue, translated] / "Jatun Pampa, Río Caine, 1900 m" [holotype], 1.1949 (type herbaria: LIL, US).
LIL 531551 (holotype): corp, ar, sp, fl, ic.

Cereus braunii Cárdenas in Succulenta 1956(1): 2-5, ills. 1956
Type: *Cárdenas 5048* – Bolivia: El Beni, Ballivián, "near Reyes, 280 m" [protologue, translated] / "Reyes, near houses as a fence, 300 m" [holotype], 6.1953 (type herbaria: LIL).
LIL 531568 (holotype): corp, ar, sp, fl, 2 ic.

Cereus comarapanus Cárdenas in Succulenta 1956(1): 5-6, ills. (p. 3) 1956
Type: *Cárdenas 5049* – Bolivia: Santa Cruz, Valle Grande, "near Comarapa" [protologue, trans-

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lated] / "Comarapa" [holotype], 2000 m, 3.11.1954 (type herbaria: LIL, US?).
LIL 531585 (holotype): corp, ar, sp, fl, ic.

Cereus huilunchu Cárdenas in Succulenta 1951(4): 49-52, ills. 1951
Type: *Cárdenas 4574* – Bolivia: Cochabamba, Ayopaya, "near Bajios de Yayani, 2000 m" [protologue] / "Bajios de Yayani, 1700 m" [holotype], 10.1949 (type herbaria: LIL, US).
LIL 531543 (holotype): corp, ar, sp, fl.

Cleistocactus angosturensis Cárdenas in Cact. Succ. J. (US) 28(2): 60-61, ills. 1956
Type: *Cárdenas 5055* – Bolivia: Cochabamba, Tarata, "Angostura, 2550 m" [protologue] / "Angostura, 2500 m" [holotype], 8.1955 [collecting date given as Aug. 1955 in the protologue but the holotype at LIL is dated Nov. 1955] (type herbaria: LIL, US?).
LIL 531595 (holotype): corp, ar, sp, fr, fr, ic.

Cleistocactus azerensis Cárdenas in Cact. Succ. J. (US) 33(3): 74-75, ills. 1961
Type: *Cárdenas 5522* – Bolivia: Chuquisaca, Azero, "Puente Pacheco, 1100 m" [protologue] / "Puente Pacheco, Río Azero, 1800 m" [holotype], 4.1959 (type herbaria: LIL, US?).
LIL 531534 (holotype): corp, ar, sp, fl, ic.

Cleistocactus brookeae Cárdenas in Cact. Succ. J. (US) 24(5): 144-146, ills. 1952
Notes: Sphalm. 'brookei', but named for Miss W. M. Brooke.
Type: *Corro s.n.* in *Cárdenas 4818* – Bolivia: Santa Cruz, Cordillera, "Pozo No. 4, Camiri, 900 m" [protologue] / "Pozo No. 4, Camiri, 800 m" [holotype], 3.1949 [date given as March 1949 in the protologue but the holotype at LIL is dated March 1950; the collection is cited as *"Corro s.n."* in the protologue and the Cárdenas number was added from the holotype specimen at LIL] (type herbaria: LIL, US).
LIL 531590 (holotype): corp, ar, sp, fl, fr, ic.

Cleistocactus buchtienii var. *flavispinus* Cárdenas in Cact. Succ. J. (US) 24(6): 182, ills. 1952
Type: *Cárdenas 4820a* – Bolivia: Cochabamba, Tarata, "La Angostura" [protologue] / "Angostura" [holotype, with the addition "Prov. E. Arze" in a different hand], 2750 m, 1.1948 [date given as Jan. 1948 in the protologue but the holotype at LIL is dated Oct. 1947, and the isotype at US Dec. 1947 (according to the Internet database as of March 2004)] (type herbaria: LIL, US).
LIL 531560 (holotype): corp, ar, sp.

Cleistocactus orthogonus Cárdenas in Cactus (Paris) 14(64): 161-162, ills. 1959
Type: *Vidaurre s.n.* in *Cárdenas 5500* – Bolivia: Potosí, Cornelio Saavedra, "between Chaqui and Betanzos" [protologue, translated] / "Chaqui to Betanzos, 3400 m" [holotype], 1.1956 [collecting date given as Jan. 1956 in the protologue but the holotype at LIL is dated April 1957] (type herbaria: LIL, US?).
LIL 531581 (holotype): fl, fr, ic (corp, ar, sp, fl) – Note: The actual specimen does not indicate "Vidaurre" as collector.

Cleistocactus reae Cárdenas in Cactus (Paris) 12(57): 251-252, ills. 1957
Type: *Cárdenas 5490* – Bolivia: La Paz, Inquisivi, "Quime" [protologue] / "near Quime" [holotype], 3000 m, 11. 1956 (type herbaria: LIL, US?).
LIL 531554 (holotype): fl, ic (corp, ar, sp, fl).

Cleistocactus ressinianus Cárdenas in Cact. Succ. J. (US) 28(2): 55-56, ills. 1956
Type: *Cárdenas 5051* – Bolivia: Chuquisaca, Oropeza, "on the way from Sucre to Tarabuco" [protologue] / "near Sucre" [holotype], 2700 m, 2.1949 [collecting date given as Feb. 1949 in the protologue but the holotype at LIL is dated March 1949] (type herbaria: LIL, US?).
LIL 531567 (holotype): corp, ar, sp, fr, ic.

Cleistocactus rojoi Cárdenas in Cact. Succ. J. (US) 28(2): 56-57, ills. 1956
Type: *Cárdenas 5052* – Bolivia: Tarija, Entre Ríos, "on the way Entre Rios to Vila Montes,

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600 m" [protologue] / Entre Ríos to Villa Montes, 80 m" [holotype], 3.1952 (type herbaria: LIL, US?).
LIL 531576 (holotype): corp, ar, sp, fl, fr, sem, ic.

Cleistocactus sucrensis Cárdenas in Cact. Succ. J. (US) 24(5): 148-149, ills. 1952
Type: *Cárdenas 4820* – Bolivia: Chuquisaca, Oropeza, "km 7 from Sucre to Tarabuco" [protologue, translated] / "Takos near Sucre" [holotype], 2750 m, 2.1949 (type herbaria: LIL, US?).
LIL 531572 (holotype): corp, ar, sp, ic (corp, fl).

Cleistocactus tarijensis Cárdenas in Cact. Succ. J. (US) 28(2): 54-55, ills. 1956
Type: *Cárdenas 5050* – Bolivia: Tarija, Cercado, "hills near the city of Tarija" [protologue, translated] / "Tarija" [holotype], 1900 m, 3.1952 (type herbaria: LIL, US?).
LIL 531575 (holotype): corp, ar, sp, fl, fr, ic.

Cleistocactus villamontesii Cárdenas in Cact. Succ. J. (US) 33(3): 76-77, ills. 1961
Type: *Cárdenas 5524* – Bolivia: Tarija, Entre Ríos, "Angosto de Villa Montes, 460 m" [protologue] / "Gran Chaco / Chaco, Angosto de Villa Montes, 450 m" [holotype], 5.1958 (type herbaria: LIL, US?).
LIL 531598 (holotype): corp, ar, sp, ic (corp, fl).

Corryocactus ayopayanus Cárdenas in Revista Agric. (Cochabamba) 7(7): 21-22, 2 t. 1952
Type: *Cárdenas 4814* – Bolivia: Cochabamba, Ayopaya, "near Tiquirpaya, between Santa Rosa and Rodeo" [protologue, translated] / "cerca de Sta. Rosa" [holotype], 2760 m, 10.1949 [collecting date given as Oct. 1949 according to the protologue but one of two isotype specimens at US dated Dec. 1949 (according to the Internet database as of March 2004)] (type herbaria: LIL, US) [see l.c. p. 24-25 for an indication of the type herbaria].
LIL 531559 (holotype): corp, ar, sp, fl, ic.

Corryocactus charazanensis Cárdenas in Cactus (Paris) 12(57): 247-249, ills. 1957
Type: *Cárdenas 5488* – Bolivia: La Paz, Bautista Saavedra, "Charazani, 3000 m" [protologue] / "Charazani, 2700 m" [holotype], 4.1957 (type herbaria: LIL, US?).
LIL 531555 (holotype): corp, ar, sp, fl, ic.

Corryocactus melanotrichus var. *caulescens* Cárdenas in Revista Agric. (Cochabamba) 7(7): 20-21. 1952
Type: *Cárdenas 4813* – Bolivia: Cochabamba, "Cerro de Arani, 2650 m" [protologue] / "Prov. Arani, Cerro de Arani, 2800 m" [holotype], 3.1947 [no collecting date given in the protologue; the date given here is copied from the holotype] (type herbaria: LIL, US) [see l.c. p. 24-25 for an indication of the type herbaria].
LIL 530276 (holotype): fl, fr.

Corryocactus pulquinensis Cárdenas in Nation. Cact. Succ. J. 12(4): 84-85, ills. 1957
Type: *Cárdenas 5084* – Bolivia: Santa Cruz, Valle Grande, "on the way Pulquina - Saipina, 1500 m" [protologue] / "near Pulquina, 1600 m" [holotype], 12.1955 (type herbaria: LIL, US?).
LIL 531532 (holotype): corp, ar, sp, fl, fr, sem, ic.

Echinopsis calorubra Cárdenas in Nation. Cact. Succ. J. 12(3): 62, ills. (p. 61-62) 1957
Type: *Cárdenas 5082* – Bolivia: Santa Cruz, Valle Grande, "on way from Comarapa to San Isidro" [protologue] / "between Comarapa and San Isidro" [holotype], 1900 m, 11.1954 (type herbaria: LIL, US?).
LIL 531570 (holotype): rad, corp, ar, sp, fl, ic.

Echinopsis cerdana Cárdenas in Cactus (Paris) 14(65): 177-178, ills. 1959
Type: *Vidaurre s.n.* in *Cárdenas 5504* – Bolivia: Potosí, Cornelio Saavedra, "near Cerda" [protologue, translated], 3600 m, 1.1956 (type herbaria: LIL, US?).
LIL 531535 (holotype): ar, sp, fl, ic (corp, fl). – Note: The original label has only the name and collection number but neither a locality nor a collector nor an indication such as "sp. nov." or "type".

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Echinopsis comarapana Cárdenas in Nation. Cact. Succ. J. 12(3): 61, ills. (p. 61-62) 1957
Type: *Cárdenas 5081* – Bolivia: Santa Cruz, Valle Grande, "on the way Comarapa - San Isidro, 1900 m" [protologue] / "near Comarapa (San Isidro), 2000 m" [holotype], 11.1954 [collected "November 1954 and December 1955" [protologue]; the holotype is dated Nov. 1954] (type herbaria: LIL, US?).
LIL 531587 (holotype): fl, fr, ic (corp, fl).

Echinopsis coronata Cárdenas in Nation. Cact. Succ. J. 12(3): 63, ills. (p. 62) 1957
Type: *Corro s.n.* in *Cárdenas 5083* – Bolivia: Santa Cruz, Florida, "near Valle Abajo, on the way from Samaipata to Quirusillas, 2000 m" [protologue] / "near Samaipata, 1500 m" [holotype], 12.1955 [collecting date given as Dec. 1955 in the protologue but the holotype is dated March 1949; the protologue ascribes the type collection to Cárdenas but the holotype label says "collected by A. Corro"] (type herbaria: LIL, US?).
LIL 531571 (holotype): fl, fr, ic (corp, fl).

Echinopsis pojoensis Cárdenas in Cactus (Paris) 14(64): 165-166, ills. 1959
Type: *Cárdenas 5503* – Bolivia: Cochabamba, Carrasco, "below Puente Pojo" [protologue, translated] / "above Pojo" [holotype], 2700 m, 12.1956 (type herbaria: LIL, US?).
LIL 531531 (holotype): corp, ar, sp, fr, sem, ic. – Note: The original label has no indication such as "type" or "sp. nov."

Echinopsis pseudomamillosa Cárdenas in Cactus (Paris) 14(64): 164-165, ills. 1959
Type: *Cárdenas 5502* – Bolivia: Cochabamba, Cercado, "Cerro de San Pedro, 2560 m" [protologue] / "Cerro de San Pedro, 2570 m" [holotype], 2.1954 [collecting date given as Feb. 1954 in the protologue but the holotype is dated March 1955] (type herbaria: LIL, US?).
LIL 531582 (holotype): fl, ic (corp, fl.

Echinopsis roseolilacina Cárdenas in Cactus (Paris) 12(57): 254-55, ills. 1957
Notes: Sphalm. 'roseo-lilacina'.
Type: *Cárdenas 5492* – Bolivia: Santa Cruz, Valle Grande, "road Cochabamba - San Isidro" [protologue, translated] / "San Isidro" [holotype], 1900 m, 4.1956 [collecting date given as April 1956 in the protologue but the holotype is dated Nov. 1954] (type herbaria: LIL).
LIL 531542 (holotype): fl, ic (corp, fl).

Echinopsis subdenudata Cárdenas in Cact. Succ. J. (US) 28(3): 71-72, ills. 1956
Notes: Sphalm. 'subdenudatus'.
Type: *Cárdenas 5056* – Bolivia: Tarija, Entre Ríos, "Angosto de Villa Montes" [protologue / holotype], 600 m, 3.1952 (type herbaria: LIL, US?).
LIL 531589 (holotype): fl, ic (corp, fl). – Note: The sheet has the data "Prov. Gran Chaco" added beneath the original label.

Echinopsis sucrensis Cárdenas in Cact. Succ. J. (US) 35(6): 200-201, ills. 1963
Type: *Cárdenas 5548* – Bolivia: Chuquisaca, Oropeza, "near Sucre, 2750 m" [protologue, translated] / "Sucre, 2800 m" [holotype], 4.1958 [the protologue has no collecting date but the holotype is dated April 1958] (type herbaria: LIL, US?).
LIL 531558 (holotype): rad, corp, ar, sp, fl, ic.

Echinopsis torrecillasensis Cárdenas in Cact. Succ. J. (US) 28(4): 110-111, ills. 1956
Type: *Cárdenas 5060* – Bolivia: Santa Cruz, Florida, "Torrecillas, near Comarapa, 3500 m" [protologue] / "Torrecillas, near Comarapa, 2000 m" [probable holotype at LIL], 3500 m, 10.1947 [collecting date given as Oct. 1947 in the protologue but the probable holotype at LIL is dated Dec. 1955] (type herbaria: LIL [status?], ZSS [status?]).
LIL 531527 (holotype?): (rad), corp, ar, sp, fl, ic. – Note: The sheet is annotated as "Typus?" in pencil, and the date does not correspond with the date given in the protologue.

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Echinopsis vallegrandensis Cárdenas in Cactus (Paris) 14(64): 163-164, ills. 1959
Notes: Sphalm. 'vellegradensis'; although this spelling is used consistently, it is here corrected as an obvious error for this taxon from Valle Grande.
Type: *Cárdenas 5501* – Bolivia: Santa Cruz, Valle Grande, "between Mataral and Valle Grande, 2700 m" [protologue, translated] / "near Valle Grande, 2800 m" [holotype], 4.1957 [collecting date given as April 1957 in the protologue but the holotype at LIL is dated Nov. 1954] (type herbaria: LIL, US?).
LIL 531583 (holotype): fl, ic (corp, fl).

Frailea chiquitana Cárdenas in Nation. Cact. Succ. J. 6(1): 8-9, ills. 1951
Type: *Cárdenas 4568* – Bolivia: Santa Cruz, Chiquitos, "near the Cerro San Miserato" [protologue, translated] / "Cerro San Miserato, Santiago" [specimen at LIL, without indication of altitude], 900 m, 2.1950 [the protologue gives the collecting date as Feb. 1950 but the isotype specimen at US is dated Jan. 1950] (type herbaria: LIL, US).
LIL 531546 (isotype): rad, corp, ar, sp, fl, ic. – Note: The sheet is annotated "cotype? no other label".

Gymnocalycium eytianum Cárdenas in Kakt. Sukk. 9(2): 25-26, ills. 1958
Notes: Supplement to the description in l.c. 11(3): 46, 1960, erratum in l.c. 12(10): 159, 1961.
Type: *Cárdenas 5065* – Bolivia: Santa Cruz, Cordillera, "near Eyti, at the road from Caipipendi to Ipati" [protologue, translated] / "Eyti, between Caipipendi and Ipati" [holotype, without indication of altitude], 1200 m, 3.1949 (type herbaria: LIL).
LIL 531569 (holotype): corp, ar, sp, fl, ic. – Note: Sheet annotated as "type only", probably indicating that this is the only specimen of the type collection.

Gymnocalycium lagunillasense Cárdenas in Kakt. Sukk. 9(2): 22-23, ills. 1958
Type: *Cárdenas 5027* – Bolivia: Santa Cruz, Cordillera, "near Lagunillas, 1000 m" [protologue, translated] / "cerca Lagunillas, 800 m" [holotype], 2.1949 [the protologue gives the collecting date as Feb. 1949 but the holotype is dated March 1949] (type herbaria: LIL, US).
LIL 531580 (holotype): corp, ar, sp, fl, fr, sem, ic.

Gymnocalycium marquezii Cárdenas in Kakt. Sukk. 9(2): 26-27, ills. 1958
Type: *Cárdenas 5066* – Bolivia: Tarija, Entre Rios, "near Angosto de Villa Montes" [protologue, translated] / "Angosto de Villa Montes, 600 m" [holotype], 600 m, 3.1952 (type herbaria: LIL).
LIL 531592 (holotype): rad, corp, ar, sp, fl, ic.

Gymnocalycium zegarrae Cárdenas in Kakt. Sukk. 9(2): 21-22, ills. 1958
Notes: Said to have first been published as *G. saglionis* var. *bolivianum* nom. nud. in Revista Agric. (Cochabamba) 7.1952, but this reference appears to be spurious.
Type: *Cárdenas 5019* – Bolivia: Cochabamba, Campero, "on the road from Perez to Mairana, 1700 m" [protologue, translated] / "Tcako Laguna, cerca de Perez, 2000 m" [holotype], 10.1947 (type herbaria: LIL, US).
LIL 531566 (holotype): rad, corp, ar, sp, fl, ic.

Lobivia aureolilacina Cárdenas in Cact. Succ. J. (US) 33(4): 110-111, ills. 1961
Type: *Cárdenas 5529* – Bolivia: Chuquisaca, Sud Cinti, "above Impora" [protologue / holotype], 2750 m, 4.1958 (type herbaria: LIL).
LIL 531600 (holotype): fl.

Lobivia cariquinensis Cárdenas in Cactus (Paris) 14(65): 181-182, ills. 1959
Type: *Cárdenas 5506* – Bolivia: La Paz, Camacho, "Mesa-Kala between Cariquina and Huallpacayu" [protologue, translated] / "Mesa-kala near Cariquina" [holotype], 3900 m, 4.1957 [the protologue gives the collecting date as April 1957 but the holotype is dated June 1957] (type herbaria: LIL, US?).
LIL 531603 (holotype): corp, ar, sp, fl, ic.

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Lobivia charazanensis Cárdenas in Cactus (Paris) 12(57): 256-257, ills. 1957
Type: *Cárdenas 5496* p.p. – Bolivia: La Paz, Bautista Saavedra, "below Charazani, 3000 m" [protologue, translated] / "Charazani, 2800 m" [holotype], 4.1957 (type herbaria: LIL, US?).
LIL 531540 (holotype): corp, ar, sp, fl, ic.

Lobivia cintiensis Cárdenas in Cactus (Paris) 14(65): 179-180, ills. 1959
Type: *Cárdenas 5505* – Bolivia: Chuquisaca, Sud Cinti, "between Impora and Mochará, 3000 m" [protologue, translated] / "above Impora, 2700 m" [holotype], 2.1958 [the protologue gives the collecting date as Feb. 1958 but the holotype is dated April 1958] (type herbaria: LIL, US?).
LIL 531602 (holotype): rad, corp, ar, sp, fl, fr, ic – Note: The original label has the name "Lobivia imporensis".

Monvillea apoloensis Cárdenas in Cact. Succ. J. (US) 33(3): 74, ills. 1961
Type: *Cárdenas 5521* – Bolivia: La Paz, Caupolican, "on the way Apolo to Santa Cruz del Valle Ameno" [protologue] / "Valle Ameno near Apolo" [holotype], 1400 m, 8.1959 (type herbaria: LIL).
LIL 531597 (holotype): corp, ar, sp, fl, ic.

Neocardenasia herzogiana Backeberg in Blätt. Sukkulentenk. 1: 2. 1949
Type: *Cárdenas 4100* – Bolivia: Cochabamba, Mizque, "Tcako Laguna, near Pérez" [lectotype label], 1300 m, 8.1947 (type herbaria: LIL, US).
LIL 531553 (lectotype): corp, ar, sp, fl, fr, sem.

Opuntia cochabambensis Cárdenas in Revista Agric. (Cochabamba) 12(9): 20-22, 2 t. 1953
Type: *Cárdenas 5042* – Bolivia: Cochabamba, Tarata, "near La Angostura, on the way Cochabamba - Punata" [protologue, translated] / "Cochabamba" [holotype, added by hand: "Prov. Cercado"], 2568 m, 12.1949 (type herbaria: LIL, US?).
LIL 531574 (holotype): corp, ar, sp, fr, sem, ic.

Opuntia ipatiana Cárdenas in Cactus (Paris) 5(34): 127-128, ills. 1952
Type: *Corro s.n.* in *Cárdenas 4858* – Bolivia: Santa Cruz, Cordillera, "Ipati" [protologue / holotype], 800 m, 3.1949 [the holotype has no mention of Corro as main collector] (type herbaria: LIL).
LIL 531578 (holotype): rad, corp, ar, sp, fr, ic.

Opuntia orurensis Cárdenas in Cact. Succ. J. (US) 28(4): 112-113, ills. 1956
Type: *Cárdenas 5062* – Bolivia: Oruro, Cercado, [protologue sine loco] / "near Oruro" [holotype], 3700 m, 11.1951 (type herbaria: LIL, US?).
LIL 531586 (holotype): corp, ar, sp, fl.

Parodia ayopayana Cárdenas in Cact. Succ. J. (US) 23(3): 98, ills. 1951
Type: *Cárdenas 4398* – Bolivia: Cochabamba, Ayopaya, "Puente Pilatos, on way from Morachata to Independencia" [protologue] / "Puente Pilatos" [holotype], 2700 m, 10.1949 (type herbaria: LIL, US).
LIL 531548 (holotype): corp, ar, sp, al, (fl).

Parodia comarapana Cárdenas in Revista Agric. (Cochabamba) 7(6): 24-26, ills. + 1 unnumbered pl. 1951
Type: *Cárdenas 4570* – Bolivia: Santa Cruz, Florida, "mountains N of Comarapa" [protologue, translated] / "Comarapa, 2000 m" [holotype], 2000 m, 11.1950 (type herbaria: LIL, US) [holotype cited for LIL by Doweld in Sukkulenty 3(1-2): 62. 2000].
LIL 531544 (holotype): corp, ar, sp, fl, (fr), ic.

Parodia mairanana Cárdenas in Nation. Cact. Succ. J. 12(4): 84-85, ills. 1957
Type: *Cárdenas 5085* – Bolivia: Santa Cruz, Florida, "above Agua Clara in the neighbourhood of Mairana" [protologue] / "Agua Clara near Mairana" [holotype], 1500 m, 12.1955 (type herbaria: LIL, US?).
LIL 531593 (holotype): rad, corp, ar, sp, fl, fr, ic.

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Parodia splendens Cárdenas in Cact. Succ. J. (US) 33(4): 108, ills. 1961
Type: *Cárdenas 5527* – Bolivia: Chuquisaca, Sud Cinti, "on the way Las Carreras to Chaupi Unu" [protologue] / "between Carreras and Chaupi Unu" [holotype, without altitude indication], 2500 m, 4.1958 (type herbaria: LIL).
LIL 531599 (holotype): fl, ic (corp, fl). – Note: One of the flowers of the specimen has an unusually long pericarpel and might perhaps represent an admixture.

Pereskia diaz-romeroana Cárdenas in Lilloa 23: 15-18, fig. 1, t. 1. 1950
Type: *Cárdenas 4388* – Bolivia: Cochabamba, Mizque, "on way from Ttacko Laguna to Pulquina" [protologue, translated] / "Tcako Laguna" [holotype], 1300 m, 10.1947 (type herbaria: LIL, US) [since the holotype at LIL was not known to exist at that time, Leuenberger in Mem. New York Bot. Gard. 41: 71. 1986 selected one of the specimens at US as lectotype].
LIL 531552 (holotype): corp, fol, ar, sp, fl, ic.

Rebutia candiae Cárdenas in Cact. Succ. J. (US) 33(4): 112-113, ills. 1961
Type: *Candia s.n.* in *Cárdenas 5531* – Bolivia: Cochabamba, Ayopaya, "near Tiquirpaya, 2800 m" [protologue] / "near Tiquirpaya, 2200 m" [holotype], 3.1955 [the protologue gives the collecting date as March 1955 but the holotype at LIL is dated Dec. 1958] (type herbaria: LIL, US?).
LIL 531601 (holotype): rad, corp, ar, sp, fl, ic.

Rebutia canigueralii Cárdenas in Cact. Succ. J. (US) 36(1): 26-27, ills. 1964
Type: *Cañigueral s.n.* in *Cárdenas 5554* – Bolivia: Chuquisaca, Oropeza, "Sucre" [protologue / holotype], "Cerro Churuquella, above the Recoleta" [Cact. Succ. J. (US) 73: 248. 2001], 2800 m, 4.1961 [collecting date given as April 1961 in the protologue but the holotype at LIL is dated Jan. 1960] (type herbaria: LIL).
LIL 531556 (holotype): corp, ar, sp, fl, ic. – Note: There is no mention on the sheet that the specimen was collected by Cañigueral.

Rebutia glomeriseta Cárdenas in Cact. Succ. J. (US) 23(3): 95, ills. 1951
Type: *Rocha s.n.* in *Cárdenas 4399* – Bolivia: Cochabamba, Ayopaya, "near Naranjito, Hacienda Choro, on the way to Río Cotacajes, 1800 m" [protologue] / "Naranjito, Choro, 2800 m" [holotype], 4.1949 (type herbaria: LIL, US).
LIL 531547 (holotype): rad, corp, ar, sp, fl, ic. – Note: There is no mention on the sheet that the material was collected by Rocha.

Rebutia menesesii Cárdenas in Cact. Succ. J. (US) 33(4): 113, ills. 1961
Type: *Meneses s.n.* in *Cárdenas 5532* – Bolivia: Cochabamba, Ayopaya, "near Naranjito, 1600 m" [protologue] / "near Naranjito, 2600 m" [holotype], 5.1958 [collecting date given as May 1958 in the protologue but the holotype is dated Jan. 1959] (type herbaria: LIL, US?).
LIL 531537 (holotype): (rad), corp, ar, sp, fl, ic. – Note: The sheet is annotated in pencil "Typus ?".

Rebutia taratensis Cárdenas in Cact. Succ. J. (US) 36(1): 26, ills. 1964
Type: *Cárdenas 5553* – Bolivia: Cochabamba, Tarata, "on the way Tarata - Río Caine" [protologue, translated] / "near Tarata" [holotype], 2000 m, 2.1961 [collecting date given as Feb. 1961 in the protologue but the holotype is dated Nov. 1960] (type herbaria: LIL, US?).
LIL 531557 (holotype): rad, corp, ar, sp, fl, ic.

Rhipsalis incachacana Cárdenas in Cactus (Paris) 5(34): 125-126, ills. 1952
Type: *Cárdenas 4855* – Bolivia: Cochabamba, Chaparé, "Incachaca" [protologue / holotype], 2200 m, 6.1950 (type herbaria: LIL, US).
LIL 531565 (holotype): corp, ar, sp, fr, ic.

Rhipsalis monacantha var. *samaipatana* Cárdenas in Nation. Cact. Succ. J. 12(4): 85, ills. 1957
Type: *Cárdenas 5086(a)* – Bolivia: Santa Cruz, Florida, "Baño del Inca (Samaipata)" [protologue] / "bridge of Samaipata" [holotype], 1500 m, 12.1955 [collecting date given as Dec. 1955 in the protologue but the holotype is dated Dec. 1954; the collection number is given as *5086* in the

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protologue but as *"5086 (a)"* on the holotype label] (type herbaria: LIL).
LIL 531591 (holotype): corp, ar, sp, fr.

Tephrocactus chichensis Cárdenas in Nation. Cact. Succ. J. 7(4): 75-76, ills. 1952
Type: *Cárdenas 4989* – Bolivia: Potosí, "between the railway stations of Tres Palcas and Escoriani, Nor Chichas" [protologue] / "between Tres Palcas and Escoriani, Sud Chichas", 3800 m. – 3.1952 (type herbaria: LIL).
LIL 531562 (holotype): corp, ar, sp, fl, ic.

Tephrocactus cylindrarticulatus Cárdenas in Nation. Cact. Succ. J. 7(4): 75-76, ills. 1952
Type: *Cárdenas 5004* – Bolivia: Potosí, "between the railway stations Tres Palcas and Escoriani, Nor Chichas" [protologue] / "Tres Palcas to Escoriani, Sud Chichas" [holotype], 3900 m, 3.1952 (type herbaria: LIL, ZSS).
LIL 531563 (holotype): corp, ar, sp, fr, ic.

Trichocereus antezanae Cárdenas in Fuaux Herb. Bull. 5: 16, 18, ills. (p. 17, 22). 1953
Type: *Cárdenas 4825* – Bolivia: Oruro, El Cercado, "near La Joya" [protologue] / "La Joya cerca de Oruro" [holotype], 3800 m, 11.1951 [collecting date cited according to the holotype, no date is given in the protologue] (type herbaria: LIL, US).
LIL 531588 (holotype): corp, ar, sp, fl, ic.

Trichocereus camarguensis Cárdenas in Revista Agric. (Cochabamba) 11(8): 17-19, ills. 1953
Type: *Cárdenas 5041* – Bolivia: Chuquisaca, Nor-Cinti, "near Camargo, leaving the town in the direction of Villa Abecia, 2700 m" [protologue, translated] / "Camargo, Cinti, 2500 m" [holotype], 3.1952 [collected Feb. 1949 and March 1952, fide protologue; the holotype is dated March 1952] (type herbaria: LIL).
LIL 531596 (holotype): corp, ar, sp, fl, ic.

Trichocereus conaconensis Cárdenas in Fuaux Herb. Bull. 5: 24, ills. (p. 23). 1953
Type: *Cárdenas 4827* – Bolivia: Cochabamba, Arque, "near the railway station of Cona-Cona on the way from Cochabamba to Oruro" [protologue] / "Cona-Cona, F. C. Cochabamba - Oruro" [holotype], 3700 m, 12.1951 [collecting date cited according to the holotype, the protologue gives no date] (type herbaria: LIL).
LIL 531573 (holotype): corp, ar, sp, fl, ic.

Trichocereus orurensis Cárdenas in Fuaux Herb. Bull. 5: 13, 16, ills. (p. 14, 22). 1953
Type: *Cárdenas 4824* – Bolivia: Oruro, El Cercado, "near La Joya" [protologue] / "La Joya cerca de Oruro" [holotype], 3800 m, 11.1951 [collecting date cited according to the holotype; the protologue gives no date] (type herbaria: LIL, US).
LIL 531561 (holotype): corp, ar, sp, fl.

Trichocereus orurensis var. *albiflorus* Cárdenas in Fuaux Herb. Bull. 5: 16, ills. (p. 22). 1953
Type: *Cárdenas 4984* – Bolivia: Oruro, El Cercado, "near La Joya" [protologue] / "La Joya cerca de Oruro" [holotype], 3800 m, 11.1951 [collecting date cited according to the holotype, the protologue gives no date] (type herbaria: LIL, US).
LIL 531564 (holotype): corp, ar, sp, fl, ic.

Trichocereus poco var. *albiflorus* Cárdenas in Fuaux Herb. Bull. 5: 12-13. 1953
Type: *Cárdenas 4986* – Bolivia: Potosí, Linares, "a little above Cuchu Ingenio, 3700 m" [protologue] / "Cuchu Ingenio, cerca de Potosí, 3600 m" [holotype], 2.1950 [collecting date cited according to the holotype, the protologue gives no date] (type herbaria: LIL, US).
LIL 531594 (holotype): corp, ar, sp, fl. – Note: The sheet was first labelled "cotype", but this is crossed out and replaced by "type".

Trichocereus poco var. *fricianus* Cárdenas in Fuaux Herb. Bull. 5: 11-12. 1953
Type: *Cárdenas 4987* – Bolivia: Potosí, Linares, "near Cuchu Ingenio, 3700 m" [protologue] / "Cuchu Ingenio, near Potosí, 3600 m [holotype], 2.1950 [collecting date according to the holo-

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type, the protologue gives no date] (type herbaria: LIL, US).
LIL 531579 (holotype): corp, ar, sp, fl, (fr).

Trichocereus randallii Cárdenas in Cact. Succ. J. (US) 35(5): 158, ills. 1963
Type: *Randall s.n.* in *Cárdenas 5546* – Bolivia: Tarija, Mendez, "Valley of Paicho" [protologue] / "Valle de Paichu near Escayachi" [holotype], 2300 m, 4.1962 [collection date according to the holotype, the protologue gives no date] (type herbaria: LIL).
LIL 531536 (holotype): corp, ar, sp, fl, ic

Trichocereus taquimbalensis Cárdenas in Revista Agric. (Cochabamba) 11(8): 16-17, 2 t. 1953
Type: *Cárdenas 5029* p.p. – Bolivia: Cochabamba, Tarata, "near Taquimbala, on the way Cliza - Anzaldo" [protologue, translated] / "Taquimbala" [holotype], 2800 m, 12.1947 (type herbaria: LIL).
LIL 531530 (holotype): corp, ar, sp, al, fl, ic. – Note: The original sheet has a pencil annotation "no labels", but the name is given with the addition of "nov. sp." and so the sheet is considered to represent the holotype.

Trichocereus tunariensis Cárdenas in Cactus (Paris) 14(64): 160-161, ills. 1959
Type: *Cárdenas 5499* – Bolivia: Cochabamba, Cercado, "Mt. Tunari, between Yurac Khasa and San Miguel, 3800 m" [protologue, translated] / "Mount Tunari, 3000 m" [holotype], 2.1958 [collecting date given as Feb. 1958 in the protologue but as Jan. 1956 on the holotype] (type herbaria: LIL, US?).
LIL 531539 (holotype): corp, ar, sp, fl, fr, ic. – Note: The sheet has two photographs showing plants with c. 14-16 ribs, while the material on the sheet has 22-24 ribs.

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References

Anonymous 1973a: Martín Cárdenas. – Biol. J. Linn. Soc. **5:** 393.
— 1973b: Martín Cárdenas Hermosa. – Biota **9:** 314.
— 1973c: Dr. Martín Cárdenas H. – Cact. Succ. J. (Los Angeles) **45:** 85.
— 1973d: Martín Cárdenas Hermosa. – Taxon **22:** 708.
— 1973e: In memoriam Martín Cárdenas Hermosa. – Haenkeana **1:** 1.
— 1975f: Martín Cárdenas 1899-1974. – Solanaceae Newsletter **2:** 34-36.
Backeberg, C. 1934-37: Blätter für Kakteenforschung. – Hamburg.
Britton, N. L. & Rose, J. N. 1919-23: The *Cactaceae* 1-4. – Carnegie Inst. Publ. **248.**
Candia, J. D. 1999: Dr. Martín Cárdenas Hermosa: un naturalista boliviano en el centenario de su nacimiento (1899-1973). – Rev. Soc. Boliviana Bot. **2:** 265-267.
Cárdenas, M. 1950: Cactáceas nuevas de Bolivia I. – Lilloa **22:** 15-27.
— 1967: Martín Cárdenas Hermosa. An autobiography. – Pl. Life **23:** 6-8.
— 1973 ["1972"]: Por las selvas, las montañas y los valles de Bolivia. Memorias de un naturalista. – La Paz.
Diers, L. 1973: Prof. Dr. Martín Cárdenas. – Kakt. Sukk. **24:** 175.
Funk, V. A. & Mori, S. A. 1989: A bibliography of plant collectors in Bolivia. – Smithsonian Contr. Bot. **70:** 1-20.

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Gioda, A. & Arrazola, S. 1997: Le naturaliste bolivien Martín Cárdenas et ses grandes cactées. – Succulentes **20:** 3-11.

— 2001: Martín Cárdenas, passeur entre deux mondes: l'indien et l'occidental. – Succulentes **24:** 16-22.

Greuter, W., McNeill, J., Barrie, F. R., Burdet, H. M., Demoulin, V., Filgueiras, T. S., Nicolson, D. H., Silva, P. C., Trehane, P., Turland N. J. & Hawksworth, D. L. (ed.) 2000: International Code of Botanical Nomenclature (Saint Louis Code), adopted by the Sixteenth International Botanical Congress, St Louis, Missouri, July-August 1999. – Regnum Veg. **138.**

Hinojosa Ossio, I. 1993: *Cactaceae*. – Pp. 176-185 in: Killeen, J., Garcia, E. E. & Beck, S. G., Guia de arboles de Bolivia. – La Paz.

Holmgren, P., Holmgren, N. H. & Barnett, L. C. 1990: Index herbariorum 1. The herbaria of the world, ed. 8. – Regnum Veg. **120.**

Lourteig, A. 1975: Martín Cárdenas Hermosa (12 novembre 1899-14 février 1973). – J. Agric. Trop. Bot. Appl. **21:** 257-262.

Lanjouw, J. & Stafleu, F. A. 1954: Index herbariorum 2(2). Collectors A-D. – Regnum Veg. **2.**

Rivas Graña, C. R. 1991: Personajes bolivianos del siglo XX. – Cochabamba.

Vargas Calderón, J. C. 1973: Semblanza del Doctor Martín Cárdenas Hermosa, botánico boliviano 12. XI. 1899 – 14. II. 1973. – Bol. Soc. Argent. Bot. **15:** 294-299.

Vasquez, C. R. 1973: Dr. Martín Cárdenas Hermosa. – Cact. Succ. J. (Los Angeles) **45:** 124.

Whitaker, T. W. 1974: Martín Cárdenas Hermosa: botanist extraordinary, 1899-1973. – Pl. Life **30:** 10-13.

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