TAXONOMY AND DISTRIBUTION OF EPIPHYTIC CACTI IN URUGUAY—NOTES TOWARDS A CHECKLIST OF CACTACEAE OF URUGUAY, PART 3

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Abstract: The most recent treatments of the family Cactaceae for Uruguay are that of Arechavaleta (1905), Osten (1941), and Herter (1953–55). While the globular members of the family (*Parodia* [including *Notocactus*], *Frailea*, and *Gymnocalycium*) are relatively well known through numerous later individual publications, the epiphytic species of *Lepismium* and *Rhipsalis* are comparatively poorly-known. Based on herbarium material and recent collections, we present data on the geographical distribution and taxonomy for two species of *Lepismium* and two species of *Rhipsalis*. *Lepismium cruciforme* and *Rhipsalis floccosa* are new records for the flora of Uruguay. The occurrence of *Epiphyllum phyllanthus* in Uruguay could not be confirmed.

Resumen: Los tratamientos mas recientes de la familia Cactaceae para Uruguay son las publicaciones de Arechavaleta (1905), Osten (1941), y Herter (1953–55). En comparación con las especies globulares de la familia (géneros *Parodia* [incl. *Notocactus*], *Frailea* y *Gymnocalycium*), que son bastante bien conocidas a través de numerosas publicaciones posteriores, las especies epífitas (géneros *Lepismium* y *Rhipsalis*) carecen de datos detallados. Basado en especimenes de herbario y colectas recientes, presentamos datos sobre distribución y taxonomía de dos especies de *Lepismium* y dos especies de *Rhipsalis*. *Lepismium cruciforme* y *Rhipsalis floccosa* presentan nuevos registros para Uruguay. La ocurrencia de *Epiphyllum phyllanthus* en Uruguay no fue confirmada.

Key words: conservation, Cactaceae, distribution, *Lepismium*, *Rhipsalis*, taxonomy, Uruguay

1. Introduction

Epiphytic cacti: Species of cacti are an important element in arid and semi-arid vegetations in North and South America. The vast majority of cactus taxa are terrestrial, and most of these groups are reasonably well known through many systematic and/or regional studies. This is especially true for the small-growing taxa with high "collectors' appeal."

Epiphytically growing cacti are, however, comparatively less well known. From 1356 collection records for Uruguayan cacti, the vast majority (over 1300) refer to the genera *Parodia*, *Gymnocalycium*, and *Frailea*, and there is not a single entry for epiphytic taxa (R Martin, pers. comm.). Epiphytic cacti are traditionally classified into two distinct taxonomic groups (Barthlott and Hunt 1993; Anderson 2001). The tribe Hylocereeae comprises six genera and 64 species (Bauer 2003), which occur in tropical forests of central and northern South America. It is not considered here because no representatives are native to Uruguay. The tribe Rhipsalideae consists of four genera and 61 species (Barthlott and Taylor 1995). The center of species diversity is eastern Brazil, in particular the area of the Mata Atlântica. Only a few species occur in cen-

tral and southern North America. Moreover, *Rhipsalis baccifera* (J. S. Mueller) Stearn is the only species which is also naturally occurring in Africa, Madagascar, and islands in the Indian Ocean. The genus *Rhipsalis*, in the current circumscription, comprises species with acrotonic branching, while those with predominantly basitonic branching are currently included in an expanded genus *Lepismium* (Barthlott and Taylor 1995). However, recent molecular phylogenetic analyses indicate that the genus *Lepismium* in its broad circumscription is polyphyletic and that the groups presently treated as subgenera *Pfeiffera*, *Acanthorhipsalis*, and *Lymanbensonia* should be classified into a distinct genus *Pfeiffera* (Nyffeler 2000, 2002, unpublished data; Taylor and Zappi 2004).

Vegetation of Uruguay: Uruguay is located in a transition area between hot and humid regions to the north and cold and dry areas to the south. Annual precipitation varies from 1600 mm in the north to 1100 mm in the south. The Uruguayan vegetation is largely made up of grasslands ("pampa"). Natural forests are mostly restricted to river banks and steep ravines in the extensive hill system that covers most of the country. Cactaceae are found on rocky outcrops mostly associated with hill tops, as well as on shallow stony soils overlying bedrock, but also occur in other xerophytic habitats, such as *Prosopis* forests in the west and coastal scrub along the Río de la Plata and Atlantic Ocean shorelines.

Much of the vegetation is influenced to a considerable degree by increasingly intensive agriculture and sylviculture, as well as by grazing. Severe overgrazing with subsequent colonization by neophytes and native *Eryngium* spp (Apiaceae) has a major impact on the naturally occurring biodiversity. The disappearance of natural forests is of major concern for the continued survival of epiphytes, including epiphytic cacti.

Cacti of Uruguay: In contrast to countries such as Argentina, Brazil, and Chile, the cactus diversity of Uruguay is comparatively smaller and less well known. No detailed study of the family at the national level has ever been prepared, and Arechavaleta (1905)

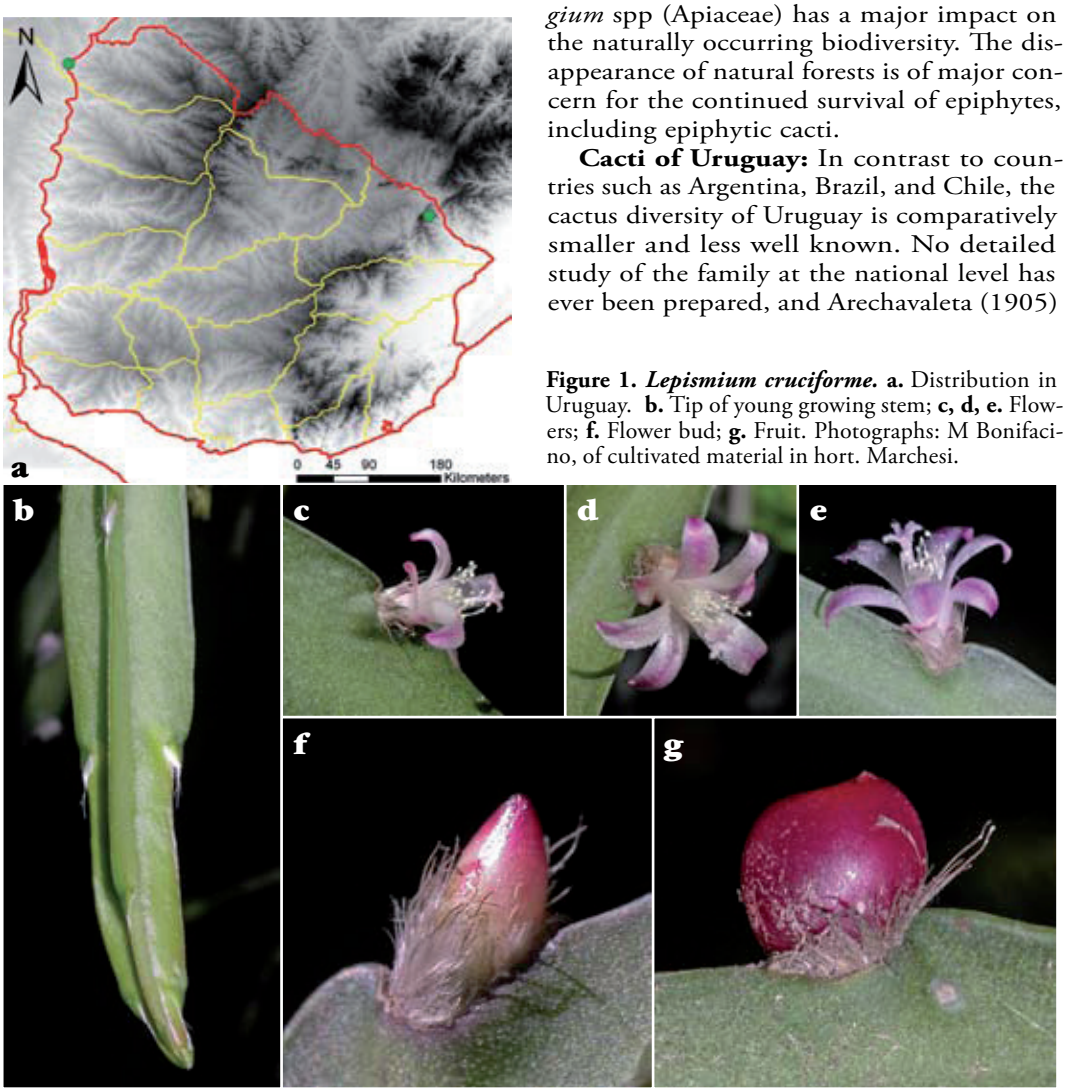


Figure 1. ***Lepismium cruciforme.*** **a.** Distribution in Uruguay. **b.** Tip of young growing stem; **c, d, e.** Flowers; **f.** Flower bud; **g.** Fruit. Photographs: M Bonifacino, of cultivated material in hort. Marchesi.

and Osten (1941) merely cover a selection of taxa. The checklist of cacti in the Uruguayan flora by Herter (1953–55) is mostly based on a literature survey, with the addition of his own (mostly undocumented) observations. Hunt (1999) lists 51 taxa (42 accepted and 9 provisionally accepted) for Uruguay, and Anderson (2005) lists 53 taxa (including infraspecific taxa).

Genera of epiphytic cacti reported from Uruguay are *Lepismium* and *Rhipsalis*, with one species each, namely *Lepismium lumbricoides* (Lemaire) Barthlott and *Rhipsalis cereuscula* Haworth (Arechavaleta 1905; Herter 1953–1955; Barthlott and Taylor 1995, 1999; Anderson 2005).

The occurrence of *Rhipsalis linearis* K. Schumann (a synonym of *Lepismium warmingianum* (K. Schumann) Barthlott according to Barthlott and Taylor 1995) and *R. pentaptera* A. Dietrich as communicated by Britton and Rose (1923) was not confirmed in later literature and must be considered erroneous.

Hunt (1999) also lists *Epiphyllum phyllanthus* (Linné) Haworth for Uruguay, but no specimens to support this occurrence have been located, nor is the species reported by other authors. The species has a wide range, but in the most recent synopsis of the group (Bauer 2003) Uruguay is not listed in the distribution range. The nearest regions from which this taxon is known are Paraguay and northern Argentina. An occurrence in Uruguay is unlikely, but possible.

2. Material and methods

Fieldwork: Fieldwork was carried out in Uruguay by UE and RN in October/November of 2004 and 2005. A total of 138 localities scattered over a large part of Uruguay were visited in order to sample cactus diversity in the form of herbarium vouchers and photographic documentation. Sampling of cactus diversity was carried out in a general way, and no special emphasis was placed on epiphytic taxa. Herbarium material (143 specimens) was prepared using the method of Eggli and Leuenberger (1996). Sets were deposited at MVJB and ZSS. All collections are geo-coded by using a GPS receiver in the field.

Herbarium work: We studied all accessible herbarium material of cacti in the herbaria of Montevideo (MVFA, MVJB, MVM). Out of a total of 76 usable (in the sense of having sufficient data or being sufficiently complete) specimens, 40 belong to the study group. Epiphytic cacti are thus vastly over-represented in relation to the total cactus diversity—only two out of the previously recorded 51 taxa are epiphytes! This over-representation of epiphytic cacti could be due to the fact that these comparatively less-succulent plants are easier to dry than other cacti. In addition, the holdings of B, US, Z and ZSS were checked for Uruguayan material, but none were found.

Taxonomy and distribution: Herbarium specimens were geo-coded (± 1–5 geographical minutes) whenever the locality data was sufficiently detailed to allow localization of the collection on modern maps. Distribution maps were then generated using ESRI ArcMap (version 9.1) software and topographic and other data from the Digital Basemap of the Americas project (see Bletter and others 2004). The diagnostic taxon descriptions were compiled from herbarium specimens and published descriptions (Taylor and Zappi 2004; Anderson 2005), and—for *L. lumbricoides*—our own collections. Variation patterns could only be explored to a limited extent due to the relative paucity of the material available. Generic classification and species synonymy follow Barthlott and Taylor (1995).

3. Results: Descriptions, classification, and identification

3.1. Key to genera and species

1 Branching basitonic to mesotonic; stems terete or 3- to 6-angled (or rarely flat)..... ..... ***Lepismium,2***

1 Branching predominantly or exclusively acrotonic; stems terete ..... ***Rhipsalis, 3***

2 Stems distinctly angled or rarely flat; areoles 1 cm or more apart..... ..... ***Lepismium cruciforme***

2 Stems terete; areoles < 1 cm apart .... ***Lepismiumlumbricoides***

3 Stems heteromorphic (extension shoots and second-order and third-order stems of different lengths), terete..... ..... ***Rhipsalis cereuscula***

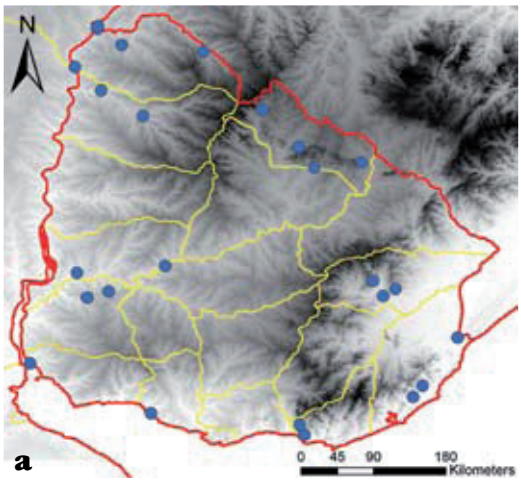
3 Stems all similar, terete to slightly angled ..... ***Rhipsalis floccosa***

3.2. *Lepismium*

3.2.1. *Lepismium cruciforme* (Fig 1)

Epiphytic or rarely lithophytic; stems creeping, with few to numerous adventitious roots, or pendent, forming chains to 3 m long, segmented, irregularly branched basitonically to mesotonically, more rarely also acrotonically, all similar, medium green, margins often flushed dark red, fully exposed plants completely red-

brown to brown-green; stem segments 15–30 (–40) cm long and 0.6–3 cm wide, frequently 3-ribbed, occasionally flat or with up to six angles or ribs, rib margins very shallowly to distinctly and often irregularly crenate to undulate-crenate; areoles small, 1.2–2 cm apart, situated in the crenations along the ribs, before flowering subtended with a conspicuous, triangular, scale-like leaf rudiment ca. 1 mm long, later naked, enlarged with age and with a conspicuous tuft of wool and weak bristles, bristles 5–10 mm long, straight, whitish to brownish. Flowers usually scattered along the length of the stems, solitary (but the same areole can form another flower later), diurnal, opening for a single day only, unscented, broadly funnel-shaped at anthesis, 0.9–1.5 cm diam. and 0.7–1 cm long; pericarpel medium green to pinkish green, rounded to obconical, 3–5 (–7) mm long and 2–5 mm diam., without scales; perianth elements 8–9, narrowly obovate to oblong, 5–7 mm long and to 2 mm wide, delicate, white to pale cream, white flushed with pink, or pale pink, tip obtuse, recurved; stamens ca. 60, filaments 3–7 mm long, white, lower filaments placed against the style; anthers/pollen very pale yellow to white; style ca. 5 mm long, lower ⅓ white, otherwise pinkish; stigma lobes 3–5, spreading, ca. 1 mm long, white to pinkish. Fruits depressed globose to globose to globosely pear-shaped, rarely elongate-globose, first dull green, magenta to dark red at maturity, to 7 mm diam. and 11 mm long, glossy,



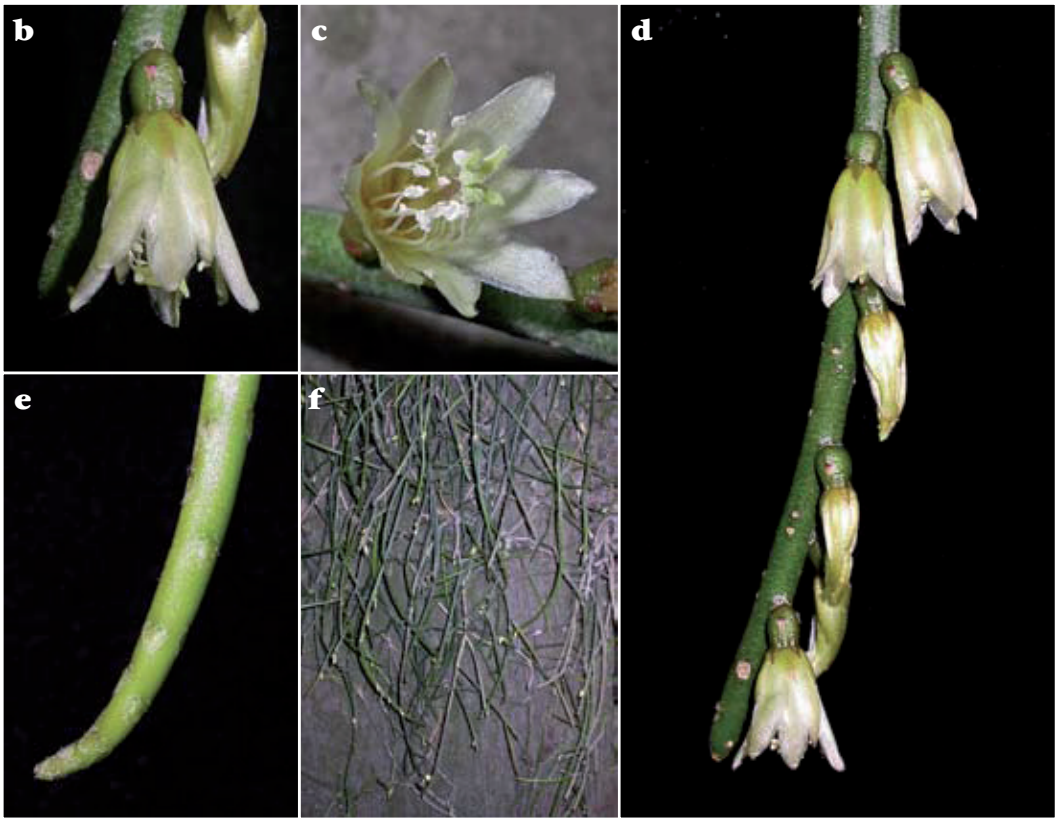


Figure 2. ***Lepismium lumbricoides.*** **a.** Distribution in Uruguay. **b, c.** *Lepismium lumbricoides* flowers; **d.** Flowering stem; **e.** Tip of young growing stem; **f.** Habit. Photographs: M Bonifacino, of material collected at Buceo, Montevideo.

scar left by the deciduous perianth conspicuous, 1.5–2 mm wide, fruit wall 2.5 mm thick, pulp strongly mucilaginous; seeds numerous (ca. 30–35), brown. Flowering time: December to March; fruiting time: February to September.

Comments: This is the first report of *Lepismium cruciforme* in Uruguay, though its presence could have been expected. It is a very widespread and variable taxon. Although the synonymy (see Anderson 2005) is extensive and the variability pronounced, no infraspecific classification has been proposed so far. The name has a checkered nomenclatural history and is based on the conserved name *Cactus cruciformis* Vellozo 1829 (Brummitt 1996). In earlier literature, this species is often named *Lepismium myosurus* (Salm-Dyck ex De Candolle) Pfeiffer (based on *Cereus myosurus* Salm-Dyck ex De Candolle 1828).

Identification: Though the plants are variable, they are easy to identify amongst Uruguayan epiphytic cacti due to the flat or ribbed/ridged, massive stem segments.

General Distribution: NE to SW Brazil (Pernambuco and southwards), Uruguay, SE Paraguay, NE Argentina (Formosa, Chaco, Corrientes, Misiones).

Distribution in Uruguay: Artigas, Cerro Largo.

Ecology: There is no data on the specimens available, but at least in Cerro Largo, plants have been observed (EM and MB) as epiphytes on *Erythrina crista-galli* (Fabaceae).

3.2.2. *Lepismium lumbricoides* (Lemaire) Barthlott (Fig 2)

Epiphytic or rarely lithophytic; stems creeping on tree branches and then with numerous adventitious roots, or irregularly parallel-pendent, irregularly branched basitonically to mesotonically, all similar, dull green to medium green, 10–40 cm long, 4–6 mm diam., terete or slightly longitudinally ridged in the dry season or when old with 6–8 indistinct ribs; areoles minute, regularly scattered along the length of the stems, 8–14 mm apart, on young stems with a minute pointed triangular subtending scale-like leaf-rudiment 0.5–1 mm wide, later naked and almost invisible, or with a minute tuft of dirty white short wool, or more rarely with weak bristly spines; spines present on some or all areoles, 1–8 per areole, 2–5 mm long, softly bristly, straight or irregularly curved, brown to almost black. Flowers usually scattered along the length of the stems, sometimes more aggregated towards the stem tips, diurnal, unscented,

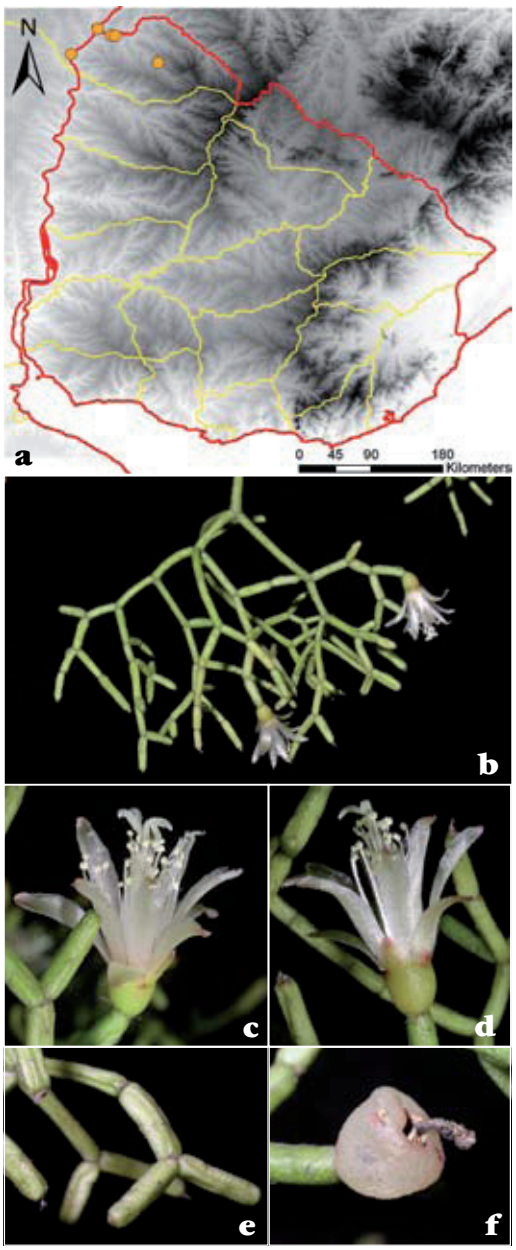


Figure 3. ***Rhipsalis cereuscula.*** **a.** Distribution in Uruguay. **b.** Habit; **c, d.** Flowers; **e.** Detail of branching stems; **f.** Fruit. Photographs: M Bonifacino, of cultivated material in hort. Marchesi.

opening for ca. three days; buds ascending at 45° angle, greenish; open flowers spreading to pendent, campanulate to broadly funnel-shaped, 1–1.5 cm diam. and long; pericarpel dull dark green, globose or bluntly angled, 2–3 mm long and ca. 2 mm diam., sometimes with 1–2 small scales; perianth elements (8–) 12–18, oblong to narrowly obovate, 11–13 mm long, 3–4 mm wide, obtuse, delicate,

white to greenish white or whitish cream, sometimes almost semi-transparent, outer elements smaller; stamens ca. 30, filaments whitish to greenish white, 5–7 mm long; anthers/pollen very pale yellow to white; style white to greenish white, filiform, 9–10 mm long, longer than the stamens; stigma lobes (3–) 4–5, spreading, 2.5 mm long, white to pale greenish. Fruits ca. globose to slightly elongate-globose, ca. 5 mm diam., first green, changing to dark red when ripe, dry perianth remains usually remaining attached, brown to almost black, pulp strongly mucilaginous; seeds ca. 20, black. Flowering time: September to November; fruiting time November to February (?).

Comments: Plants are variable, especially as to presence or absence of bristly spines, and also to some extent with respect to growth form and distance between areoles, but none of these characters appears to follow a geographical or ecological pattern. Barthlott and Taylor (1995) recognize two forms of this species, but it appears uncertain whether these two taxa (forma *lumbricoides*; forma *aculeatum* (F. A. C. Weber) Barthlott & N. P. Taylor [= *Rhipsalis aculeata* F. A. C. Weber], reported only for NW Argentina) can be upheld in view of the general variation presented by the species over its geographical range. The Uruguayan material falls within the range of variation that Barthlott and Taylor imply for forma *lumbricoides*, although their differential description of forma *aculeatum* calls for whitish bristles (rather than brown to blackish as observed in Uruguayan collections).

Identification: The combination of basitonic to mesotonic branching and terete stems with greenish white to whitish cream flowers allow easy identification of the taxon in Uruguay.

General distribution: Brazil (São Paulo and southwards), Uruguay, Paraguay, Argentina (Catamarca and northwards), E Bolivia. This is a widespread taxon. Font (2003) gives more details for the occurrence in Argentina, including a list of provinces.

Distribution in Uruguay: Throughout the country. Herter (1953–1955) lists Artigas, Cerro Largo, Durazno, Maldonado, Rivera, Salto, San José, Soriano, Tacuarembó, and Treinta y Tres; Herter (1930) also gives Colonia (for the synonym *Rhipsalis aculeata*).

Ecology: Forests and forest remains along arroyos, epiphytic on a variety of trees, for instance *Myrsine* (Myrsinaceae), *Erythrina crista-galli* ('Ceibo'; Fabaceae), *Celtis tala* (Ulmaceae), *Prosopis* (Fabaceae). Rarely lithophytic on somewhat shaded rocks (Arechavaleta 1905; at Pan de Azucar).

3.3. *Rhipsalis*

3.3.1. *Rhipsalis cereuscula* Haworth (Fig 3)

Epiphytic or lithophytic; stems markedly heteromorphic, with acrotonical branching, terete, pale fresh green; extension shoots 7–40 (–60) cm long, 3–4 mm diam., with numerous adventitious roots, attached to branches or tree trunks or erect to irregularly porrect-spreading and finally pendent, with closely set areoles bearing finely bristled, appressed, soon-caducous spination; second-order shoots in clusters of 3–4 (–10 or more) at or near the tips of extension shoots, not always present, 4–10 cm long, spineless; third-order shoots in pairs or in dense clusters at the tip of second-order shoots or in groups of up to five from the tip of older third-order shoots, 0.5–1.5 cm long, 2–4 mm thick, usually distinctly clavate, sometimes irregularly sausage-like, rarely much abbreviated and almost globose, slightly 4–5-ribbed when old or desiccated, areoles 2–6 mm apart, minute, without subtending scale, segment tip with a bristly composite areole, bristles 2–4, transparent, delicate, to 1.5 mm long. Flowers at the tip of third-order segments only, pendent, diurnal, opening for several days, unscented, campanulate to funnel-shaped, ca. 1.2 cm diam. and 15 mm long; pericarpel green to pale yellowish green, more or less globose to obconical, 4–5 mm diam. and long, naked or occasionally with 1–2 scales, scales reddish triangular, 0.2 mm long, with or without bristles in their axils; perianth elements 11–15, the inner 7–8 slightly larger than the outer, 8–10 mm long and 3 mm wide, narrowly elliptic, acute, white to very pale creamy-white, tip faintly flushed pinkish, the outer elements more spreading, the inner remaining more erect; stamens ca. 36, filaments white with somewhat reddish base, 7–10 mm long; anthers/pollen pale yellow; style white, filiform, 9–10 mm long, longer than the stamens and usually also surpassing the perianth; stigma lobes 3–5, spreading to recurved, whitish. Fruits more-or-less globose, white or occasionally red, 5–7 mm diam., dried perianth remains persistent, base somewhat immersed into the top of the fruit, pulp strongly mucilaginous; seeds black (pers. obs., Ritter 1190 from Paraguay, herbarium ZSS 13619, 14677), number not

known. Flowering time: October to March; fruiting time: April to October.

Comments: Variability in *R. cereuscula* is not very pronounced, apart from some variation in fruit color (usually white but "occasionally red outside Brazil" according to Taylor and Zappi 2004). The only Uruguayan specimen with fruit data (Del Puerto 2061, MVFA) was reported to have white fruits.

Identification: *R. cereuscula* is easily recognizable due to its heteromorphic shoot organization with usually clavate ultimate segments.

General distribution: E and S Brazil (from Pernambuco southwards), Uruguay, NE Bolivia (La Paz), E Paraguay, NE Argentina (Corrientes, Entre Ríos, Misiones).

Distribution in Uruguay: Artigas, in the drainage of the Río Cuareím but also reported from "Río Negro, Tacuarembó and others" (Arechavaleta 1905, for the synonym *R. saglionis* (Lemaire) Otto ex Walpers (Herter 1953–1955), but no specimens have been traced to corroborate these citations.

Ecology: Forest remains along arroyos, epiphytic.

3.3.2. *Rhipsalis floccosa* Salm-Dyck ex Pfeiffer (Fig 4)

Epiphytic; stems spreading-pendent, in total to 1.5 (–3) m long, segmented, basally becoming woody and to 1.5 cm thick, usually without adventitious roots, branched acrotonically with groups of (2–) 3–5 branches, all stems similar, to 20 (–30) cm long and 4–5 (rarely to 12) mm thick, terete or somewhat irregularly angled, very weakly thickened below the rudimentary leaf subtending the areoles, gray-green, dull, somewhat rubbery but firm and not flaccid, minutely scabrid; areoles 1.5–4 cm distant from one another, immersed into the stem tissue and largely invisible before producing a flower, without subtending scale, older areoles to 4 mm wide, densely woolly-bristly, otherwise spineless, producing additional flowers over the course of time. Flowers scattered along the length of the stems, diurnal, flatly opening, 1.2–2.2 cm diam., opening for 2–3 days, scented, nectariferous disc surrounding the style; pericarpel semi-globose, 3 mm diam. and long, completely immersed in the woolly areole, cream-colored, without scales; outer perianth elements 3–5, creamy yellow with reddish tips, inner perianth elements 7–8, oblong, obtuse and slightly cucullate, 8 mm long and 3–4.5 mm wide, greenish-white to white, delicately translucent; stamens very numerous (60+), filaments white, 5–7 mm long; pollen pale yellow to whitish; style white, ca. 7 mm long; stigma lobes (3–) 4 (–6), spreading, white, 3 mm long. Fruits before maturity pale green, sometimes flushed dark red, white or red when ripe, turbinate, ca. 5 mm diam., sometimes with two minute areoles with scant wool, scar left from the deciduous perianth quite conspicuous, ca. 1.5 mm diam., fruit wall 2 mm thick, translucent white; seeds 20–22, black. Flowering time October to November; fruiting time June to October.

Comments: *R. floccosa* is a widespread and variable taxon that is divided into a total of six subspecies with mostly allopatric distribution and little-pronounced differences (Anderson 2005). The total variability of the species needs further assessment (Taylor and Zappi 2004). This taxon is newly recorded for Uruguay, but the material at hand (herbarium specimens only) does not allow us to assign it with certainty to any of the subspecies.

Identification: The combination of rubbery stems of equal architecture with hidden sterile areoles and widely opening flowers make the identification of *R. floccosa* easy.

General distribution: Venezuela, Brazil, Uruguay, Paraguay, Peru, Argentina, Bolivia.

Distribution in Uruguay: Only known from Rivera.

Ecology: Epiphytic on *Citharexylum montevidense* ('Tarumán'; Verbenaceae), and probably local and rare.

4. Discussion

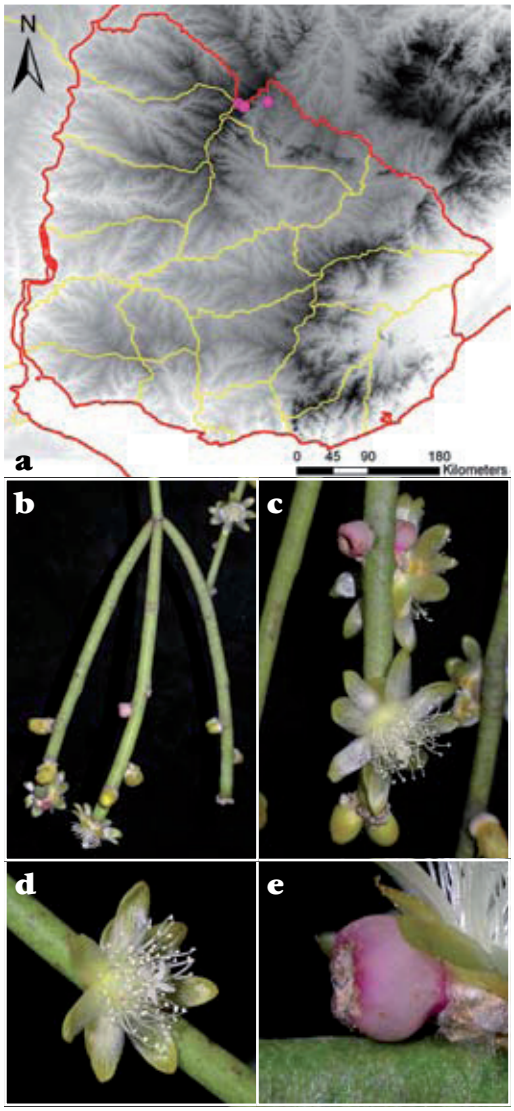
In South America, subtropical forests reach their southern limits in Uruguay and in the Buenos Aires province of Argentina. In Uruguay most of these forests are associated with the extensive system of hills and accompanying rivers, and it is in these habitats where the Uruguayan epiphytic cacti are to be expected. *L. lumbricoides* is widely distributed throughout the country. Our knowledge of the distribution of the other three species of epiphytic cacti (*L. cruciforme*, *R. floccosa,* and *R. cereuscula*) is scanty. Considering the long history of exploration in the country and its rather small area we think this is a case of genuine rarity in the country, rather than overall poor sampling. All three taxa reach the fringe of their southern distribution in Uruguay. It is anticipated, however, that more records will be added for these three rare species when more areas are explored.

Uruguay has witnessed rather aggressive deforestation implemented throughout the country during the last three decades, the effects of which are yet to be determined in terms of the

changes inflicted to native vegetation. However, the biggest threat to epiphytic cacti is the cutting down of native forests, in particular "serrano" forest (a rather low, 4–6 m high, xerophytic forest associated with hilly areas), for fuel wood and in the reduced and fragmentary nature of the most humid and lush forests located in the north of the country (EM and MB, pers. obs.). These northern forests constitute the habitat of the three more-rare species.

As a result of the condition of the Uruguayan native forests and the threats imposed by logging, all taxa could be considered slightly to moderately threatened. More information on the distribution of the three rare species is needed in order to assess their conservation status with more confidence on the national Uruguayan level. Taylor (2006) lists an overall conservation assessment of "least concern" for all four taxa.

Figure 4. ***Rhipsalis floccosa.*** **a.** Distribution in Uruguay. **b.** Habit; **c.** Flowering and fruiting branch; **d.** Flower; **e.** Fruit. Photographs: M Bonifacino, of cultivated material in hort. Marchesi.captino



5. Material examined

Lepismium cruciforme

Uruguay. Artigas; "Riusa, San Gregorio", 30.3.1962, Del Puerto 2060 (MVFA s.n.); Cerro Largo; "en camino sobre Sierra de Ríos, al S de Esc. 25 y caserón, al N Puesto Policial", 21.10.1992, Izaguirre and al. s.n. (MVFA 21094B).

Lepismium lumbricoides

Uruguay. Colonia; "Isla Juncal", s.a., Anonymus s.n. (MVM 17095); San José; "Arazatí", 11.1933, Ardao s.n. (MVM 10122); Rocha; "Laguna de Castillos, costa N", 3.12.1995, Bayce and al. s.n. (MVFA 26477); Artigas; "Cuareím", 9.1901, Berro s.n. (MVFA 4046); Artigas; "Cuareím, Sta. Rosa", 1.9.1901, Berro s.n. (MVFA 2144 pp); Artigas; "Cuareím, Sta. Rosa", 15.9.1901, Berro s.n. (MVFA 4045); Artigas; "Cuareím", 1.9.1901, Berro s.n. (MVFA 2144 pp); aldonado; "Pan de Azucar", 12.1899, Berro s.n. (MVFA 4044); Maldonado; "Pan de Azucar", 12.1899, Berro s.n. (MVFA 3038); Maldonado; "Pan de Azucar", 12.1899, Berro s.n. (MVFA 3088); Soriano; "Vera", 4.11.1902, Berro s.n. (MVFA 2540); Treinta y Tres; "Cerro Aspero", 29.11.1899, Berro s.n. (MVFA 4047); Artigas; "Ar. Yucutujá, Paso iraponchos, Ruta 30, 26.8.1995, Bonifacino s.n. (MVFA 25017); Montevideo; "Cementerio del Buceo", Bonifacino s.n. (photographs only); Río Negro; Palmares de Porrúa, 16.10.1995, Brescia and al. s.n. (MVFA 26810); Tacuarembó; "Rtua 44, Ao. Yaguarí", 7.10.1961, Del Puerto 242 (MVFA s.n.); Rocha; "Parque San Miguel", 6.10.1965, Del Puerto and Marchesi 5270 (MVFA s.n.); Artigas; "area a inundar por Represa Salto Grande al sur del Ao. Guaviyú (Paredón)", 12.1977, Del Puerto-Berreta 14753 (MVFA s.n.); Salto; Arapey, 9.1949, Herter [Pl. Urug.] 1130c (B, MO?); Rivera; Ruta 6, 2 km al N de Vichadero", 20.10.1992, Izaguirre and al. s.n. (MVFA 21048B); Rocha; "Arroyo Chafalote", s.a., Legrand 3733 (MVM s.n.); Maldonado; "Sierra de las Animas", 15.9.1963, Marchesi 818 (MVFA s.n.); Salto; Campos de Zunini, Río Arapey, 17.9.1976, Marchesi s.n. (MVFA 12802); Rivera; unnumbered road connecting Ruta 27 at Cerro Pelado al

Este with Minas Corrales, 41 km S of Ruta 27 (= 35 km S of Amarillo), 21.10.2005, Nyffeler and Eggli 1615 (MVJB, ZSS); Artigas; some km SE of Artigas on Ruta 30, then 7 km on lateral road to and beyond Piedra Pintada, 23.10.2005, Nyffeler and Eggli 1633 (MVJB, ZSS); Río Negro; Ruta 20, km 32, 22.3 km E of Ruta 24, Arroyo Sanchez, 25.10.2005, Nyffeler and Eggli 1655 (MVJB, ZSS); Treinta y Tres; Ruta 18, Arroyo Ceibal, 21.10.1969, Olano and al. s.n. (MVFA 8783); Treinta y Tres; "Río Olimar a la altura de T y Tres", 22.10.1969, Olano and al. s.n. (MVFA 8815); Rivera; "Tranqueras", 22.2.1947, Osorio s.n. (MVM 13526); Soriano; "Mercedes, Cololó", 17.2.1892, Osten 2936 (MVM s.n.); Soriano; "Cololó prope Mercedes", 29.9.1895, Osten 4190 (MVM s.n.).

Rhipsalis cereuscula

Uruguay. Artigas; "Bella Unión", 23.1.1942, Anonymus s.n. (MVFA 3743); Artigas; "Cuaró", s.a., Anonymus s.n. (MVM 17328); Artigas; "Riusa, San Gregorio", 30.3.1962, Del Puerto 2061 (MVFA s.n.); Artigas; "Río Cuareím, al oeste del ar. Yucutujá"/"Estancia El Ombu de Mallo, A. Yucutujá y R. Cuareím", 12.4.1978, Del Puerto and Marchesi s.n. (MVFA 15313); Artigas; Río Cuareím y ar. Yucutujá, 6.10.1997, Marchesi s.n. (MVFA 26950).

Rhipsalis floccosa

Uruguay. Rivera; en quebrada afluente ar. Lonarejo, ruta 30, km 107, 11.4.1984, Bayce and al. s.n. (MVFA 17322); Rivera; "Ao. Potrero, Po. Ataques", 12.12.1997, Bonifacino and al. s.n. (MVFA 27638); Rivera; Arroyo Rubio Chico, 12.5.1995, Brussa and al. s.n. (MVFA 24963).

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