

# New Combinations in Cactaceae

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As part of my forthcoming project “Taxonomy of Cactaceae, Species Description, Volumes 3 & 4, after studying each taxon and its characteristics (and although these modifications may be minimal or crucial) it is sometimes necessary to modify the classification for a better approach of genera and taxa which compose them. Moreover, these segregations of species into subspecies may also prove to be vital for populations that are threatened with extinction, within a species whose other subspecies, otherwise, do not suffer any threat.

*Borzicactus fieldianus* subsp. *cajamarcensis* (Ritter) Lodé STAT.NOV.

**Basionym:** *Borzicactus cajamarcensis* Ritter, Kakt. Süd. 4: 1375, (1981).

**Type:** Peru, Llacanora, near Cajamarca, Dpt. Cajamarca, 1957, *Ritter* 679 (U, ZSS, SGO).

**Synonyms:** *Borzicactus cajamarcensis*, *Cleistocactus cajamarcensis*.

**Etymology:** from Cajamarca, Dpt Cajamarca, Perú.

**Shape & habit:** shrubby, freely branching, erect or decumbent, 2-3 m high; shoots 7-8 cm thick, dark green.

**Ribs:** usually 6-10, 2-3 cm wide, moderately notched.

**Areoles:** oval, 7-10 mm long, 5-7 mm wide, 7-15 mm apart, light brown, greying with age.

**Spines:** **radials** 12-18, mostly below, needle-shaped or somewhat subulate, about 3-12 mm long; **centrals** 4-5, subulate, 1-3 cm long. All mostly straight, rigid, brownish or ivory coloured, with a brown tip.

**Flowers:** appearing near the top, erect, about 6 cm long, tubular with reddish brown triangular scales and white and black wool, carmine with brownish-yellow outer tepals.

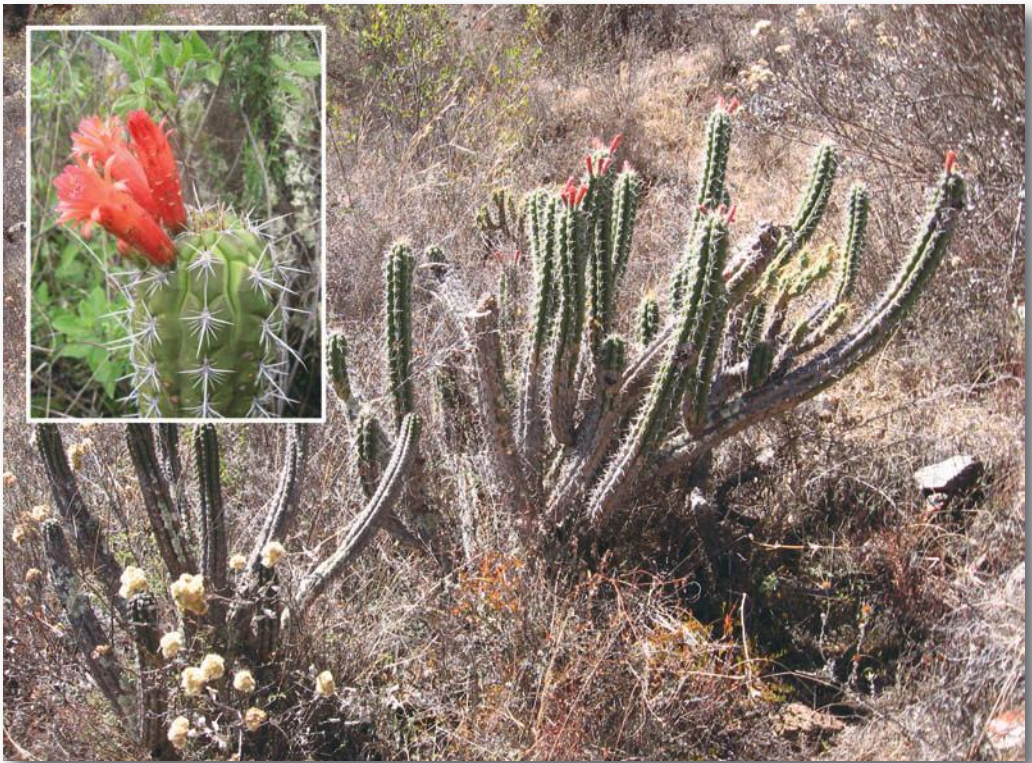
**Fruits:** 2-4 cm, slightly wider than long, pale yellow, greenish yellow or orange yellow, with very small, mostly dried scales and whitish to black wool; wall 3-6 mm thick, pulp juicy, white

**Seeds:** broadly ovate, 0.9-1.0 × 1.3-1.5 mm, glossy black, small micropyle, periphery keeled.

**Habitat:** grows among trees and shrubs, at about 2500-2560 m alt.

**Distribution:** Perú (Cajamarca).

**Notes:** while Hunt (2006) and Anderson & Egli (2011) consider *Borzicactus cajamarcensis* as a synonym of *B. fieldianus*, Ostolaza (2014) maintains it as a good species. This is where molecular works might help. Seeds of *B. cajamarcensis* are however glossy black and pitted. Thus, I think it should be considered at least as a subspecies of *B. fieldianus* and this is reflected here.



***Borzicactus fieldianus*** subsp. ***cajamarcensis***, Laguna San. Nicolas, Cajamarca, Peru, NCP 03 (RRP-1136). © Nelson Ciez Padilla

Ostolaza (2014) added ‘*Cleistocactus chotaensis*’ to *B. cajamarcensis* for the similarities although the description doesn’t fit: “Plant 2 meters high; flowers 5 cm. long, orange-coloured; limb 2.5 cm broad; scales on the ovary bearing long black hairs; stamens as long as the perianth-segments” (in Britton & Rose 1920). In fact, this taxon should fit better within *B. sepium*.

We did not know for sure the origin of “*C. chotaensis*”: N. of Peru or N. of Ecuador; what is certain is that it is indeed a *Borzicactus*. See further in this journal.

***Borzicactus fieldianus*** subsp. ***cajamarcensis*** was previously not retained in *Cact. of Tax.*, vol. 1.



“*Cleistocactus chotaensis*” in culture, Chandler, Arizona, USA

© Tristan Davis.



***Borzicactus sepium* subsp. *morleyanus*** (Krainz) Lodé STAT.NOV.

**Basionym:** *Borzicactus morleyanus* Britton & Rose, Cact.2:160 (1920).

**Type:** Ecuador, prov. Chimborazo, Sibambe, 29 Aug. 1918, Rose & Rose 22431 (NY).

**Synonyms:** *Borzicactus morleyanus*, *B. sepium* var. *morleyanus*, *Cleistocactus sepium* var. *morleyanus*.

**Etymology:** for Edward Morley, of Huigra, Ecuador, who helped Rose in his explorations in Ecuador in 1918.

**Shape & habit:** shrubby, low, erect, prostrate or ascending, sometimes hanging over cliffs, shoots 4-6 cm Ø, light to dark green.

**Ribs:** 13-16, low, obtuse, divided into tubercles.

**Areoles:** ± rounded, 3-6 × 2-5 mm, ca. 1 cm apart.

**Spines:** **radials & centrals** indistinct, 15-20, bristly or somewhat acicular, unequal, the longer ones 2.5 cm. long, brown.

**Flowers:** narrow, 5 to 6 cm. long, slightly oblique; tube hairy, with greenish scales; perianth-segments spreading, acute, usually red; stamens exerted; filaments purple above, white or tinged with pink below, erect; style and stigma-lobes cream-coloured.

**Fruits:** globular, yellow, perianth remnants persistent.

**Seeds:** not described.

**Habitat:** grows in dry valleys, often among dense vegetation of trees and shrubs at about 2000-2500 m alt.

**Distribution:** **Ecuador** (Chimborazo).

**Notes:** Madsen (1989) lumped *B. websterianus* into subsp. *morleyanus*, however, plants seen at the type locality look very different and, despite the lack of information on the seeds, merit recognition at less at subspecific level, which is done here.



***Borzicactus sepium* subsp. *morleyanus***, Chimborazo, Pitishi, Ecuador. © P. Corman

***Borzicactus sepium* subsp. *ventimigliae*** (Riccob.) Lodé STAT.NOV.

**Basionym:** *Borzicactus ventimigliae* Riccob., Boll. R. Orto Bot. Palermo 8:262 (1909).

**Type:** Ecuador, Quito, “cult. (Palermo, probably existing)” (fide Madsen, Fl. Ecuador 35: 22. 1989).

**Synonyms:** *Borzicactus aequatorialis* nom. inval., *B. cutakii* nom. prov., *B. ventimigliae*, *Cereus ventimigliae*, *Cleistocactus chotaensis*, *C. sepium* var. *ventimigliae*.

**Etymology:** for the Count Luigi Ventimiglia di Grammonte (1827-1922), famous Italian botanist, author of several scientific papers and founder of the Botanical Garden in Palermo.

**Shape & habit:** shrubby, columnar to 1.50m high, stems 4-7 cm Ø, narrowing towards apex, dark green.

**Ribs:** 8-9, crenate, with shallow, sinuate furrows.

**Areoles:** elliptic, 4-6 × 2-3 mm, 1.5-2.5 cm apart, white-felted, then glabrous.

**Spines:** **radials & centrals** undifferentiated, 8-10, unequal, thin, flexible, spreading, divergent, up to 2 (9) cm long, brown or dark-red with a yellowish base at the beginning, later blackish.

**Flowers:** tubular slightly zygomorphic with an unpleasant odour, orange-red to red; tube 4 cm long, scarlet-red, scaly, with short, whitish dark hairs at the base.

**Fruits:** globular, 2 cm Ø, scaly and woolly at the base, edible, pulp white.

**Seeds:** brain-shaped, 1.2-1.5 × 0.8-1.0 mm, matt black, glossy around the hilum, ruminant.



***Borzicactus sepium* subsp. *ventimigliae***, Pichincha, Guayllabamba, Ecuador. © P. Corman



**Habitat:** grows on hillslopes among grasses and shrubs, between 950-2800 m alt.  
**Distribution:** S. Colombia (Nariño), N. Ecuador (Carchi, Imbabura, Pichinche).  
**Notes:** Britton & Rose (1920) considered *B. ventiglimiae* synonym with *B. sepium* and added that the plant that Riccobono sent under the name of *B. ventimigliae* was the same as the one they had received from Berlin Botanical Garden as “*Cereus sepium*”. However, Dr Rose found *B. sepium* between Ambato and Quito, which is within the natural distribution of subsp. *ventimigliae*.

Moreover, when Riccobono sent a flower and a branch to Roland-Gosselin to have his authoritative opinion, the French botanist expressed the doubt that the plant belonged to “*Cleistocactus sepium*” or “*roezlii*”. From the comparison of the descriptions, and from a small stem kindly received from Roland-Gosselin, Riccobono noted that it does not correspond to his plant at all and described the plant under *Borzicactus vintimigliae*.

The only *Borzicactus* found in Colombia, close to the Ecuadorian border and named *B. cutakii* nom. prov. proved to be *B. sepium* subsp. *ventimigliae*.

Finally, the enigmatic ‘*Cleistocactus chotaensis*’ is to be placed here (see further in this journal all the details and explanations).



*Borzicactus sepium* subsp. *ventimigliae*, Tungurahua, Ambato, Ecuador © C. Defferrard



*Borzicactus sepium* subsp. *ventimigliae*, North of Ibarra, Ecuador © C. Defferrard

*Borzicactus sepium* subsp. *websterianus* (Backeberg) Lodé **STAT. NOV.**

**Basionym:** *Borzicactus websterianus* Backeberg, Blätt. Kakteenf. 11, genus 46, sp. 2 (fig.) (1937).

**Type:** Southern Ecuador, prov. of Cuenca.(ZSS?).

**Synonyms:** *Borzicactus websterianus*, *B. websterianus* var. *rufispinus*.

**Etymology:** for Dr. Frederic Webster Goding (1858-?), entomologist, US Consul General in Guayaquil, Ecuador from 1914 until 1924, who assisted Dr. J. N. Rose in his botanical explorations of the country.

**Shape & habit:** low, shrubby, erect, branching from the base, forming groups; stems very thick, to 10 cm Ø, light to dark green.

**Ribs:** ± 14, narrow, 1 cm wide, ± depressed around the areoles.

**Areoles:** elliptic, with V-shaped furrows above.

**Spines:** **radials** ca. 20, most of them 6-12 mm long, radiating irregularly, sharp, **centrals** 4, one longer and stronger, to 5 cm long, straight, yellow to reddish brown, then whitish.

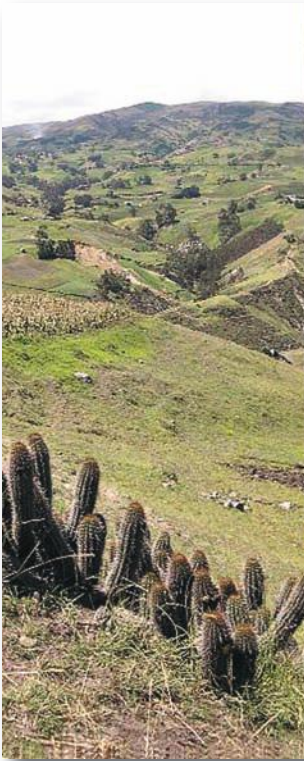
**Flowers:** zygomorphic, carmine-red.

**Fruits & Seeds:** not described.

**Habitat:** grows on mountain slopes, among rocks, at about 3000 m alt.

**Distribution:** Ecuador (Cañar, Cuenca).





***Borzicactus sepium*** subsp. ***websterianus***, Cañar, Honorato Vasquez-Ingapirca, 3160 m alt., Ecuador. © P. Corman

**Notes:** it is a shame that this original taxon has not been more deeply studied; Madsen (1989) puts it in synonymy with *C. sepium* v. *morleyanus*. However, pictures of P. Corman (pers. comm. 2018) taken near the type locality, show plants with different features of *B. sepium* typus, but which correspond perfectly to the short, but clear description of *B. websterianus*, thus, it seems, for the time being, better to take it as a separate taxon, pending of a serious and exhaustive DNA analysis.

In fact, apart those of P. Corman (also illustrated in the vol.1 of Tax. of Cact. 2015, although not retained at this time), pictures on the net are all erroneous, including plants from the Huntington Bot. Gard., in San Marino, Cal., which show a *Cleistocactus* aff. *strausii* rather than a *B. websterianus*.

According to Backeberg (1937), this is the thickest of all *Borzicactus*.

***Copiapoa leonensis***\* I.Schaub & Keim

Cactus & Co. 10(2): 118-126 (illustr.). 2006.

**Type:** Chile, Atacama, N.E. of Caldera, 27 Aug. 2004, I.Schaub & R.Keim s.n. (SGO 151588).

**Synonyms:** *C. megarhiza* subsp. *parvula* **SYN. NOV.**

**Etymology:** from the Quebrada el León, Atacama, Chile, where the species was found.

**Shape & habit:** small, solitary or two-headed, rarely more, body hard, globular to



***Copiapoa leonensis***, Quebrada del Leon © V. Bueno ; right, root system

© G. Marchand

slightly elongated, 3.5-8.0 cm Ø, epidermis pale greyish green, turning pinkish when stressed (sunstroke), apex flat, woolly; root napiform, large, also hard to the touch, yellow, 15 cm long, 3 cm wide with a narrow neck.

**Ribs:** 11-16, spiralled, tuberculate when young, 8 mm Ø, 4-5 mm deep.

**Areoles:** rounded, 2-3 mm Ø, 3-8 mm apart, woolly when young, later glabrous, slightly depressed.

**Spines:** **radials** 8 to 10, 5-13 mm long, straight, needle-shaped, spreading; **centrals** 1-3, slightly stronger, dark when young, greying with age, often missing in the old areoles.

**Flowers:** diurnal, funnel-shaped, 20-30 mm long, yellow, outer tepals greenish, yellow at the base, tipped reddish-brown.

**Fruits:** globular, 5-6 mm Ø, green.

**Seeds:** oval, flattened, 1.0-1.3 × 0.7-1.1 mm, glossy dark brownish-black, finely tuberculate, periphery slightly keeled, funicular remnants pale grey.

**Habitat:** grows on coastal hillslopes near the sea on rocky soil and outcrops among bushes and shrubs (*Euphorbia lactiflua*), or clayish-sandy soil covered with pebbles, between 40-970 m alt. Other cacti growing in this area are *Copiapoa marginata*, *Trichocereus deserticola* and *Eulychnia breviflora*.

**Distribution:** Chile (Atacama).

**Notes:** according to the DNA work of Larridon *et al.* (2015), *C. megarhiza* subsp. *parvula* (2005) seems to be the same as *C. leonensis* (2006) and should be synonymized. However, as shown in their molecular work, 'parvula' is not a subspecies of *C. megarhiza*. If 'parvula' would be raised as species rank, it would be immediately synonymized with *C. leonensis* which is older: then, *C. megarhiza* subsp. *parvula* must be considered as a synonym of *C. leonensis*.

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