

## A NEW INFRA-SPECIFIC STATUS FOR *TEPHROCACTUS GEOMETRICUS* (A. CASTELLANOS) BACKEBERG FROM CATAMARCA, NW ARGENTINA

*Tephrocactus alexanderi* (Britton *et* Rose) Backeberg, in *Cactus* (Paris) 8(38): 250 (1953). *Basionymus*: *Opuntia alexanderi* Britton *et* Rose, *The Cact.* 4: 256 (1923); *Typus*: Argentina, Prov. La Rioja, between Chilecito and Famatina “Fanatina”, 19 Feb. 1921, *legit* W. B. Alexander s.n. [US, *holo. spec. vis*, corp, ar, sp]. *Synonymi*: *Opuntia bruchii* Spegazzini, in *Physis* (Buenos Aires) 7: 239 (1925); *Opuntia bruchii* var. *macracantha* Spegazzini, in *Revista Argent. Bot.* 1: 202 (1926); *Opuntia bruchii* var. *brachycantha* Spegazzini, in *Revista Argent. Bot.* 1: 202 (1926); *Tephrocactus alexanderi* (Britton *et* Rose) Backeberg. var. *bruchii* (Spegazzini) Backeberg, in *Cactus* (Paris) 38: 250 (1953); *Opuntia alexanderi* var. *bruchii* (Spegazzini) G.D.Rowley, in *Natl. Cact. Succ. J.* 13: 5 (1958); *Tephrocactus alexanderi* subvar. *macracantha* (Spegazzini) Backeberg, *Die Cact.* 1: 293 (1958); *Tephrocactus alexanderi* subvar. *brachycanthus* (Spegazzini) Backeberg, *Die Cact.* 1: 294 (1958); *Tephrocactus riojanus* (Hosseus) Backeberg, in Backeberg & F.M. Knuth, in *Kaktus-ABC* 113, 1935 (1936), *nom. inval.* (*cfr.* ICN Art. 39.1, McNeill *et al.*, 2012); *Tephrocactus subsphaericus* Backeberg, in Backeberg & F.M. Knuth, in *Kaktus-ABC* 112, 410, 1935 (1936); *Tephrocactus alexanderi* var. *subsphaericus* (Backeberg) Backeberg, in *Cactus* (Paris) 8(38): 250 (1953); *Opuntia alexanderi* var. *subsphaerica* (Backeberg) G.D.Rowley, in *Natl. Cact. Succ. J.* 13: 5 (1958); *Tephrocactus microsphaericus* Backeberg, *Kakteenlexikon* 482 (1966), *nom. inval.* (*cfr.* ICN Art. 8.4, McNeill *et al.*, 2012).

**Specimina visa: Plantae viventium:** Argentina, Las Termas, D. J. Ferguson DJF 318 *sub Tephrocactus alexanderi* var. *bruchii*, *cult. hort.* Sukkulenten-Sammlung Zürich (Imago 1). **Exsiccata.** Argentina, Prov. La Rioja, between Chilecito and Famatina “Fanatina”, 19 Feb. 1921, *legit* W. B. Alexander s.n. [NY, *iso.*, corp, ar, sp]; Argentina, Prov. Catamarca, Tinogasta, 1600 m, B. Leuenberger *et al.* 4398 *sub Opuntia alexanderi* Britton *et* Rose [ZSS, corp, ar, sp, al, fl, fr, sem]; Argentina, Prov. Catamarca, Tinogasta, 1600 m, B. Leuenberger *et al.* 4399 [ZSS, corp, ar, sp, al, fl, fr, sem]; Argentina, Prov. Catamarca, Tinogasta, 1950-2050 m, B. Leuenberger *et al.* 4402 *sub Opuntia alexanderi* Britton *et* Rose [ZSS, corp, ar, sp, al, fl]; Argentina, Prov. Catamarca, Tinogasta, 1350 m, B. Leuenberger *et al.* 4403 *sub Opuntia alexanderi* Britton *et* Rose [ZSS, rad, corp, ar, sp, fr, sem]; Argentina, Prov. La Rioja, Famatina, 2000 m, B. Leuenberger *et al.* 4409 *sub Opuntia alexanderi* Britton *et* Rose [ZSS, corp, ar, sp, fl, (fr)]; Argentina, Prov. La Rioja, General Lavalle, 1440 m, B. Leuenberger *et al.* 4413 *sub Opuntia alexanderi* Britton *et* Rose [ZSS, corp, ar, sp, fl, fr, sem]; Argentina, Prov. San Juan, Iglesia, 1750 m, B. Leuenberger *et al.* 4417 *sub Opuntia alexanderi* Britton *et* Rose [ZSS, corp, ar, sp, fr, sem]; Argentina, Prov. San Juan, Caucete, 560 m, B. Leuenberger *et al.* 4468 *sub Opuntia bruchii* Spegazzini [ZSS, rad, corp, ar, sp, (fr)]; Argentina, Prov. Catamarca, Tinogasta, 1960 m, B. Leuenberger *et al.* 4673 *sub Opuntia bruchii* Spegazzini [ZSS, corp, ar, sp, (fr)]; Argentina, Prov. Catamarca, Tinogasta, 1900 m, B. Leuenberger *et al.* 4701 *sub Opuntia bruchii* Spegazzini [ZSS, corp, ar, sp, fl]; Argentina, Prov. Catamarca, Tinogasta, 1950 m, B. Leuenberger *et al.* 4703 *sub Opuntia bruchii* Spegazzini [ZSS, corp, ar, sp, al, fl]; Argentina, Prov. La Rioja, Arauco, 700 m, B. Leuenberger *et al.* 4707 *sub Opuntia bruchii* Spegazzini [ZSS, corp, ar, sp, fr, sem]. **Distributio:** NW Argentina ( S Catamarca, La Rioja, NW San Juan, NE San Luis), 500-2050 m. **Note:** *Tephrocactus halophilus* (Spegazzini) Backeberg previously referred to this species (Backeberg, 1958: 288; Ritter, 1980 : 396) is here considered a close relative

of *Tephrocactus aoracanthus* (Lemaire) Lemaire (*cf.* Kiesling, 1984: 193-196; Kiesling & Meglioli, 2003: 171-172; Trevisson & Perea, 2009: 115, 118).

***Tephrocactus alexanderi* subsp. *geometricus*** (A. Castellanos) Guiggi *comb. et stat. nov.*  
*Basionymus:* *Opuntia geometrica* A. Castellanos, in *Kakteenkunde* 1934: 172 (1934); *Typus:* Argentina, Prov. Catamarca, Tinogasta, Angostura de Guanchín, 24 Jan. 1934, *legit* A. Castellanos 30/748 [BA, *holo. spec. vis. ico.* 7i in Kiesling, 1984: 117]. *Synonymus:* *Tephrocactus geometricus* (A. Castellanos) Backeberg, in Backeberg & F.M. Knuth, in *Kaktus-ABC* 111, 1935 (1936).

**Specimina visa. Plantae viventum:** Argentina, Prov. Catamarca, 30 km West of Fiambalá, 2278 m, C. Hunkeler HUN 244 *sub Tephrocactus alexanderi*, *cult. hort.* Sukkulanten-Sammlung Zürich (Imago 2); Argentina, Prov. Catamarca, West of Fiambalá, C. Hunkeler *sub Tephrocactus alexanderi* f. *geometricus*, *cult. hort.* Sukkulanten-Sammlung Zürich. **Exsiccata:** Argentina, Prov. Catamarca, Tinogasta, 2400 m, B. Leuenberger *et al.* 4245 *sub Opuntia geometrica* A. Castellanos [ZSS, corp, ar, sp, fr, sem]; Argentina, Prov. Catamarca, Tinogasta, 1900 m, B. Leuenberger *et al.* 4246 *sub Opuntia geometrica* A. Castellanos [ZSS, rad, corp, ar, sp, fr, sem]. **Distributio:** NW Argentina (SW Catamarca), 1900-2500 m. **Notes:** a here recognized dwarf subspecies, smaller in its all vegetative and reproductive parts, characterized by a higher altitudinal range, fewer and curved apical spines, distributed in a restricted area at the NW limit of the species. In cultivation this taxon reaches larger dimensions than the plants in habitat where it is only one or two articles high (Pilbeam & Partridge, 2016: 111) but maintaining its typical spines.

### Key to the *Tephrocactus alexanderi* subspecies

1. Forming group to 50 x 50 cm; areole 3-4 mm in diameter; spines normally straight, 4-20, 1-5 cm long; flower 5-7 x 5-7 cm; fruit 2.5 x 1.5 cm; seed 5-7 mm in diameter; distributed in Catamarca, La Rioja, San Juan, San Luis, 500-2050 m.....**1. *T. alexanderi* subsp. *alexanderi***  
Forming group 15 x 25 cm; areole 1-2 mm in diameter; spines normally curved, 0-7, 0.5-1.8 cm long; flower 3-3.5 x 3-3.5 cm; fruit 1.7 x 2.2 cm; seed 3.2 mm long; distributed in Catamarca, 1900-2500 m.....**2. *T. alexanderi* subsp. *geometricus***



**Images 1:** An adult plant in flower of *Tephrocactus alexanderi* subsp. *alexanderi* (Britton et Rose) Backeberg from Argentina, Las Termas, *D. J. Ferguson 318* sub *Tephrocactus alexanderi* var. *bruchii*, in cultivation at the Sukkulente-Sammlung Zürich. Photo: A. Guiggi.





**Image 2:** A curved and few spined plant of *Tephrocactus alexanderi* subsp. *geometricus* (A. Castellanos) Guiggi from Argentina, Prov. Catamarca, 30 km West of Fiambalá, 2278 m, *C. Hunkeler 244 sub Tephrocactus alexanderi*, in cultivation at the Sukkulenten-Sammlung Zürich. Photo: A. Guiggi.

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### **Nomenclatural novelties proposed in this supplement**

*Tephrocactus alexanderi* subsp. *geometricus* (A. Castellanos) Guiggi *comb. et stat. nov.*

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