

3. *Echeveria saltensis* Pino, W.Ale & D. Marquiegui, sp. nov.

Holotype: ARGENTINA: Prov. Salta, Dpto. Guachipas, Alemania, on slate outcrops associated to banks of *Deuterocohnia* sp. (*Blossfeldia liliputana* growing near), 1264 m, S 25° 39' 58.0", W 65° 36' 29.3" March 1, 2019, W.Ale & D. Marquiegui 01/2019. (MCNS 13545). **Material used for description:** Same place, on shaded rocky banks of the small river that drains northward into Río Las Conchas, about 4 Km South from the hamlet, Dec 13, 2018, G. Pino, W. Ale & D. Marquiegui 3015.

Introduction: This new species is a surprise brought up through social networks. It was published as *Echeveria peruviana* Meyen in https://m.facebook.com/sebasantecchia/posts/pcb.10155933712572508/?photo_id=1832430476827264&mds=%2Fphotos%2Fviewer%2F%3Fphotoset_token%3Dpcb.10155933712572508%26photo%3D1832430476827264%26profileid%3D683858429%26source%3D48%26refid%3D18%26__tn__%3DEHR%26cached_data%3Dfalse%26ftid%3D&mdp=1&mdf=1, however, it does not match neither this species nor *E. argentinensis*. It has been carefully documented by our coauthors Ale & Marquiegui and according to its features, it is a new, distinct taxon (Fig. 3a).

Description: A succulent glabrous herb. **Roots** narrowly tuberous; Main root a taproot, 6–8 mm diam., gradually tapering distally to 2 mm diam., 5–15 cm long. 2–4 **secondary tuberous roots**, 4–6 mm diam. tapering to 2 mm diam., 4–6 cm long, grayish brown. **Fibrous roots** scarce, around tuberous roots, 4–6 cm long × 0.2–0.5 mm diam., whitish (Fig. 3b). **Stem** short, simple, very rarely branched in old plants (Fig. 3c), erect when young, then curved or decumbent, 2.5–7 cm long, (0.5–) 1–1.8 (–3) cm diam., greenish gray to light olive green near rosette, with circular leaf scars and sometimes dry leaves near rosette. **Rosette** generally simple at the end of stem, 8–18 cm diam. **Leaves** 10–22, very narrow obovate to very narrow oblong, wider obovate when young, sessile, horizontal or at 45°, 3.5–9 cm long, 0.7–1.3 cm wide at base, 0.6–2.1 cm wide at proximal third, 0.7–2.2 cm wide at middle, 0.6–2.2 cm wide at distal third, 2–5 mm thick, upper side flat to concave or canaliculate, shiny in some plants, (Fig. 3d) more frequently dull reddish green to brown, surface pattern formed by minute green, red, black and white longitudinal rows of discontinuous dots (Fig. 3e), margins light green or light red, lower side subcarinate, same pattern but lighter or redder in color, apex acute or mucronate, when present,



3a. Detail of *Echeveria saltensis* scape with flowers in habitat. (W.A.)

mucro light green, 0.5 × 1 mm, base light olive green (Fig. 3f).

Flowering stem a lateral subterminal raceme, rachis 25–45 (–60) cm long, 8–10 mm diam. at base, slowly tapering to 3–4 mm diam. at apex, light green at base, then pinkish towards apex (Fig. 3g). **Peduncular bracts** 14–22, inserted at 45°, alone at proximal half of stem, then one at the base of each pedicel, spaced 1–1.5 cm apart at base and 0.5–1 cm apart towards apex, oblong to very narrowly ovate, slightly recurved, 2–4 cm long, 5–10 mm wide, 1.5–2 mm thick, inner side flat to slightly concave or canaliculate, same color and pattern as leaves, outer side convex to subcarinate, same color, acute, apices obtuse to acute, light green, base green (Fig. 3h). **Flowers** 10–23, appearing from January to February, at distal third of the scape, 1.3–1.5 cm long and 0.8–0.9 cm diam. (Fig. 3i). **Pedicels** 0.5–1.2 cm long, horizontal or slightly curved upwards, 1.2–1.4 mm diam., pink to dark red, with 1 small 3–4 mm long, 1.2–1.4 mm wide bractlet at the middle. **Calyx lobes** united at base, sepals horizontal, tips slightly incurved, unequal, oblong to ovate or triangular, acute, light green, inner



3b. Young plant of *Echeveria saltensis* showing root system.



3c. Old plant of *Echeveria saltensis* with multiple branches. (W.A.)

side flat to concave, outer side convex, 5–6 mm long, 2–3 mm wide (Fig. 3j). **Flower buds** wide ovoid, 1–1.2 cm long, 0.8–0.9 cm diam., salmon pink, yellowish at apex. **Corolla** urceolate to subprismatic, 0.8–0.9 cm thick near base, 0.4–0.5 mm thick near apex, 1.3–1.5 cm long, petals oblong, acute, 1.3–1.5 cm long, 4–5 mm wide, outer surface keeled, salmon red at proximal third or 2/3, yellowish at distal 2/3 or third, apex



3d. Young rosette of *Echeveria saltensis* with shiny leaves.



3e. Detail of the multicolor surface of *Echeveria saltensis* leaves.

slightly recurving and red at the very tip, inner surface yellow. **Stamens** 10, the 5 epipetalous 6–7 mm long, the antesealous 9–10 mm long, filaments cream, 0.8–1 mm thick at base, gradually tapering to 0.2 mm. **Anthers** ovoid, yellow, 1–1.2 mm long and 0.6–0.7 mm wide. **Gynoecium** ovoid, 8–9 mm long, 5–6 mm thick. **Carpels** 5, cream yellow. **Styles** 3–4 mm long, parallel, almost touching each other, greenish yellow,



3f. Detail of *Echeveria saltensis* leaf size and shape.



3h. Detail of *Echeveria saltensis* bracts.



3g. *Echeveria saltensis* in situ with a developing scape.

greenish at the tip. **Stigma** whitish. **Nectaries** reniform, greenish white, 2–2.2 × 0.9–1.1 mm. **Fruit** a dehiscent capsule 0.9–1.1 cm long, 0.7–0.8 cm diam., brown (Fig. 3k).

Discussion: This new species is phenologically very similar to *Echeveria chilensis* from Perú, with which it could easily be mistaken (Fig. 3l), especially with its recently described variety *cantaensis* (Pino, 2002, 2018). Rosettes and leaves are approximately



3i. *Echeveria saltensis* ex situ showing scapes and flowers. (W.A.)

the same size and shape, narrow linear oblong, especially in mature plants, however, *E. saltensis* surface pattern of coloration is a raster of closely spaced minute stripes of multicolored dots making some plants range from olive green to reddish and even purplish. This color variation and pattern is not seen in *E. chilensis*. While *E. saltensis* develops aerial stems that bend searching support on the rocks or trunks where they grow, and even branch freely in very old plants, in *E. chilensis* these stems are erect, very short or when present, hidden or buried among moss. The roots of this species are definitely tuberous, but they are the



3j. *Echeveria saltensis* flowers in habitat. (W.A.)

narrowest and longest of all Argentinian species, and definitely not as thick as the tuberous roots of *E. chilensis*, corresponding to the lush habitats where they grow. Scapes are similar in size and number of bracts, but flowers are more abundant and slightly larger in *E. saltensis*, with longer pedicels, similar sepals in right angle but slightly shorter, longer and wider petals with a more consistent yellowish distal 2/3 on the outer surface and slightly thicker carpels (See Table 1).

Distribution: To date, there is only one locality known for this unusual *Echeveria*, far south in the Province of Salta, quite close to its border with the province of Tucumán. This location belongs also to the Cordillera Oriental of Argentina, but it lies deep into its lowest valleys, specifically the Santa María-Guachipas River system, with a subtropical climate. This is perhaps the southernmost (almost 26° south) and lowest (1200 m) growing *Echeveria* in South America.

II. Genus *Sedum*

4. *Sedum jujuyense* Zardini, 1971. *Bol. Soc. Argent. Bot.* 14 (1–2): 95–106.

Holotype: ARGENTINA: Prov. Jujuy, Dept. Manuel Belgrano. Yala gorge, Dec 6, 1969, *A.L. Cabrera & R. Kiesling* 20222. (LP, holotype, K, isotype).

Introduction: In 1969 our coauthor Roberto Kiesling discovered this species near Jujuy. Even though



3k. Details of *Echeveria saltensis* flowers, from left to right: sepals (5), petals (3), gynoecium, sectioned flower showing gynoecium, bud, single flower, dry fruit. (W.A.)



3l. Cluster of plants of *Echeveria saltensis* in habitat, resembling *E. chilensis* var. *cantaensis* from Peru. (D.M.) he was to become the Argentinian expert in cacti and other succulents, his mentor, the renowned botanist Ángel Lulio Cabrera assigned Elsa Matilde Zardini to describe this species, as she was then in charge of Rosaceae for Argentina. After that, very few localities have been found for this plant and no pictures have been published so we decided to include it in this treatment. A detailed description is presented (Fig. 4a).

Description: A succulent glabrous herb growing on rocks, forming loose mats up to 10–15 cm diam., basally branching, 2–10 cm tall in the vegetative state (Fig. 4b), 8–18 (–22) cm tall in the reproductive state. **Basal stem** decumbent, 1–5 cm long, 1.5–1.8 mm diam., gray brownish, with fibrous roots 0.5–2