

Echeveria lyonsii, a new species from Tamaulipas, Mexico

**Summary.** A new species, *Echeveria lyonsii*, is described from Tamaulipas, Mexico. It appears to be related to *E. shaviana* and *E. bifida*, both with 13 chromosomes. From these, *E. lyonsii* differs in having 12 chromosomes and smaller flowers. Also discussed is a natural hybrid apparently allied with *E. lyonsii*.



Inflorescence of *E. lyonsii* type plant.

*Echeveria lyonsii*

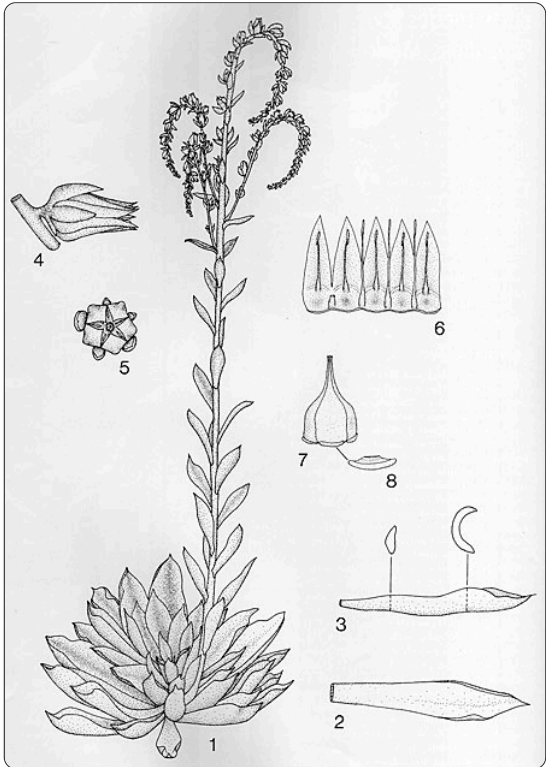
In 1971 *Gary Lyons* and I were exploring along the road from Ciudad Victoria to Jaumave, Tamaulipas, Mexico. About 19 miles from Ciudad Victoria we found a number of interesting plants growing on an oak-strewn slope much disturbed by livestock: *Mammillaria candida*, *M. picta* (?), *M. macrocentra* (?), *Opuntia microdasys*, *O. stenopetala*, a *coryphantha*, *Dolichothele baumii*, two agave species, *Villadia cucullata* ssp *apiculata*, a *dasyliroides*, and *Hechtia* aff *capituligera*. We dug up a plant of the latter and, while I was carrying it back to the truck, *Gary* pointed out that below it an *echeveria* was dangling by its roots.

This species—so serendipitously discovered—is named for *Gary Lyons*, Curator of the Desert Garden at the Huntington. Besides being apparently the first to have seen the species, *Gary* is noted for having designed the Ethel Mars Cactus Garden in Las Vegas, Nevada, authored a book (*Desert plants*, a curator's introduction to the Huntington Desert Garden, Huntington Library, 2007) and co-authored another (*Desert gardens*, by *Levick and Lyons*, 2000). In 1966 and 1971 he participated in two Huntington botanical expeditions to Mexico.

The purplish leaves of *Echeveria lyonsii* closely resemble those of *E. bifida*, though they are somewhat more spatulate; the leaves of *E. lyonsii* also lack the undulation found in *E. shaviana*. Florally, *E. lyonsii* is distinct in series *Angulatae* in having very small flowers—only 9 mm long. An apparently allied natural hybrid found by *Jack Davies* in 1965 near Jaumave is discussed below.

In the ensuing 40 years or so since these two collections were made, both have been propagated, photographed, and studied. However, their final classification has been delayed because of uncertainty as to the relationship between them and allied species.

In the course of his work with the Mexican *Crassulaceae*, *Charles Uhl* made eight hybrids of *E. lyonsii* with other *Echeveria* species and one with a *graptopetalum* (1).



The natural hybrid allied with *E. lyonsii*. 1. Flowering plant, (x0.4). 2,3. Leaf, (x0.5). 4,5. Flower, lateral and apical views, (x2). 6. Petals and stamens, (x2). 7. Gynoecium, (x3). 8. Nectary, greatly enlarged. Drawing by *Diana Jacobs*, 1985, financed by a grant from the Cactus and Succulent Society of America.



#### A Rosette of Echeveria lyonsii.

Echeveria lyonsii is easily grown, offsets prolifically and can produce young plants from detached leaves or bracts. Its flowering stems are multiple and vigorous, sometimes weakening the plant during hot summers.

#### An allied natural hybrid

Six years before the discovery of E. lyonsii, Jack Davies of Monrovia, California, was looking for plants along the same road. About 10 km southwest of Jaumave (some 25 miles southwest of the type locality of E. lyonsii) he stopped at a rocky, lightly forested slope. While returning to his car he found a solitary echeveria growing underneath a shrub. He collected the plant, lacking time to explore the higher, steeper slopes where more of the plants probably grew. In 1988 International Succulent Introductions distributed his collection (2) as ISI 1848, "E. shaviana x E. bifida." It is not known if any of the plants still exist in collections.



Gary Lyons at the Huntington.

Uhl (1) provided a thorough and rather technical discussion of this plant that explains that the plant is, indeed, a natural hybrid: "In 1965, 10 km SW of Jaumave... on the road to Palmillas and ca. 40 km S of known localities of E. shaviana, Jack Davies found a single attractive plant (HNT 41537 = U2845) with pinkish leaves having more or less undulate margins, a bit like those of E. shaviana but thicker. Thought at first to be a new species, it is highly irregular at meiosis and clearly a hybrid. At metaphase I it forms 7-11 paired elements, some of them large multivalents, and 1-5 unpaired chromosomes... At anaphase it has chromosome bridges, at metaphase II the number of chromosomes on each plate ranges from 11 to 14, and only about 1% of its pollen was stainable. The International Succulent Institute offered this in 1988... as an apparent natural hybrid between E. shaviana (n = 13) and E. bifida (n = 12), and the cytology is compatible with this."

Although this parentage of the hybrid is possible, it may be that E. lyonsii is in its ancestry. One of the striking characters of the hybrid is its long, pendulous cincinni, especially pronounced under good cultivation. Aside from this and its cytology, the hybrid differs mostly in several somewhat larger dimensions:

	E. LYONSII	HYBRID
Leaves	2-4 mm thick	3-5 mm thick
Bracts	22-35 mm long	15-60 mm long
Sepals	2-5 mm long	2.5-15 mm long
Corolla	9 mm long	10-12 mm long

It is obvious that publishing a new species and discussing an allied natural hybrid on the basis of a single collection of each is not desirable. However, Mexican regulations now greatly hinder foreign botanists who wish to collect and export Mexican plants for research. It is hoped that this article will encourage Mexican botanists to study these two taxa in the field—where each was found only once nearly 40 years ago—so their interrelationships may be clarified.

#### Diagnosis and description

#### Echeveria lyonsii Kimnach sp. nov.

Caulis minus quam 3 cm altus, rosula 11-14 cm lata, folia spatulata acuta 6-7 cm longa 1-18 mm lata 2-2.5 mm crassa purpureo-grisea. Caulis florentes ad 35 cm alti, cincinni 2 vel plerumque, pedicelli minus quam 2 mm longi, sepala ascendens 2-5 mm longa, corolla 9 mm longa rubello-lutea.

Plant proliferous, stem to 6 cm tall or more, 8-10 mm thick, with brown, horizontal, lenticular leaf-scars. Rosette 11-14 cm wide, leaves ascending to horizontal, spatulate, acute, 6-7 cm long, 18-19 mm wide at widest part 2-2.5 cm from apex, 17 mm wide at middle, ca. 7 mm wide near base, mostly 2-2.5 mm thick, ca. 4 mm thick near base, convex and bluntly keeled on lower surface, concave along upper half of upper surface, purplish gray, lightly glaucous.

Flowering stems 2-5-parted, sometimes with up to three additional secondary branches, peduncle ca. 25-45 cm long, ca. 5 mm thick near base, ca. 4 mm thick just below first cincinnus, pinkish gray, lightly glaucous; bracts 22-24, attached ca. 1.5-3 cm apart, ascending, the lower ones slightly recurving on apical half, narrowly elliptical-linear, acute, 22-35 mm long, 5-7 mm wide, 3-4 mm thick; cincinni 2-8 per flowering stem, 4-16 cm long, unbranched, 3-18-flowered, rachis 1.2-2 mm thick, flowers ca. 5-10 mm apart; bracteoles 1 between each pair of flowers, oblong-elliptical, acute, 6-10 mm long, 3-4 mm wide, 1.5-2 mm thick, colored like the leaves and bracts; pedicels less than 2 mm long, ca. 1.5 mm thick; sepals ascending, ovate-elliptical, acute, 2-5 mm long, 1-2 mm wide, 0.5-1.75 mm thick; corolla ± straight-sided, strongly angled; petals linear-lanceolate, acute, ca. 9 mm long, ca. 1.5 mm wide, pinkish orange, darker near apex, the apex expanding to 45°; epipetalous stamens 2 mm long, the antisepalous 3-3.5 mm long, anthers oblong, ca. 1.25 mm long, pale yellow; gynoecium pyriform, acute, ca. 6 mm long and 4 mm thick, cream below, stigmas light green; nectaries shaped like incisor teeth, 0.25 mm wide, light yellowish.

Chromosomes: n = 12.

Mexico; Tamaulipas: 19 miles SW of Ciudad Victoria, 4400', May 24, 1971, M. Kimnach and G. Lyons 1445, Huntington Botanical Gardens 28005, UNU2428 (HNT, holotype [sheet number 3561]; MEXU, US, isotypes).

#### Description Echeveria hybrid

Plant short-stemmed, proliferous, entirely glaucous except for androecium and gynoecium. Stems to 4-5 cm high or more, 1 -2 cm thick. Leaves densely arranged in rosettes 12-18 cm wide, each with 15-35 leaves, at first strongly ascending, oblanceolate to linear-oblanceolate, subobtusely to acute, with a nearly aristate cusp 2-3 mm long, leaf blade 6.5-8.5 cm long, 7-10 mm wide at base, narrowing to 5-8 mm ca. 5 mm above base, 15-24 mm wide at widest part ca. 2 cm from apex, 3-5 mm thick, thickest ca. 2 cm from base, upper side convex along basal half, deeply concave along apical half, lower side strongly convex, obtusely to indistinctly keeled, apex upcurving, margin obtuse below, upper portion subacute, somewhat undulate on apical half but usually only on one side, somewhat glaucous, pinkish gray, apical portion darker pink.

Flowering stems 1 or 2 to a rosette, erect, 30-40 cm tall, with 2-4 cincinni, some of these often bifurcate; rachis terete, 20-28 cm long and 2-7 mm thick up to first cincinnus; bracts 18-27, lacking for basal 1-3 cm, then attached 1-2 cm apart, ascending, similar in shape to rosette leaves, lower ones more linear-oblanceolate, the upper subelliptical, 1.5-6 cm long, 2-10 mm wide, 2-5 mm thick, at base with 1 -3 acute, whitish spurs to 2 mm long, lower bracts incurving near apex, upper ones slightly recurving near apex; inflorescence ca. 3-8 cm tall and wide when young, later to about 12 cm tall and wide when cincinni are fully expanded; cincinni usually 1 or bifurcate, often with another 1 or 2 lower down on opposite sides of rachis, arching-pendent when young, later nearly erect, 6-14 cm long; bracteoles 7-20 mm long, with (8-)15-21 flowers; pedicels less than 2 mm long, ca. 2 mm thick; sepals ascending-incurving, very unequal, 1.5-4 mm wide, 2.5-14 mm long; corolla conical-pentagonal, exterior prominently keeled, 10-12 mm long, ca. 6 mm thick, orange-pink.

Mexico: Tamaulipas: 10 km SW of Jaumave on road from Ciudad Victoria to Tula, 1965, Jack Davies s.n., Huntington Botanical Gardens 41537, Uhl U2845, ISI 1848 (BH, HNT, MEXU, SD, US).

#### Glossary

**androecium** the male part of a flower, that is, the stamens  
**aristate** with a bristle at the apex  
**bracteoles** small bracts on the pedicels or upper part of an inflorescence  
**cincinnus** (pl. cincinni) a curving branch of an inflorescence with the flowers alternating in orientation  
**epipetalous/antisepalous** stamens opposite the petals / opposite the sepals  
**glaucous** with a gray or white, waxy coating  
**gynoecium** the female part of a flower, that is, the follicles and stigma  
**lenticular** lens- or lentil-shaped  
**pedicel** the stalk immediately below the flower  
**pyriform** pear-shaped  
**rachis** the central stem of an inflorescence or compound leaf  
**spatulate** spatula-shaped; rounded and wider at the apex, tapering below

#### Acknowledgements

Thanks are due to Charles Uhl for his critique of this paper and to Jack Davies for photos and plant material.



Inflorescence of the hybrid as cultivated by *Frank Reinelt*, Santa Cruz, California.



The probable natural hybrid in cultivation.

#### References

- 1 *Uhl Ch.* 1999 ("1998"). Chromosomes and hybrids of *Echeveria* (Crassulaceae) VI. Series *Angulatae* Walther and *Pruinosae* Walther. *Haseltonia* 6: 70, 85, 88-89; Figs 13, 42.
- 2 *Davis L.*, and others. 1988. The 1988 offering of International Succulent Introductions. *CacSucc J* (US) 60: 93.