Echeveria lyonsii new species from Tamaulipas, Mexico

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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*.

*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 *dasylirion*, 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.

Drawing by Diana Jacobs, 1985, financed by a grant from the Cactus and Succulent Society of America.
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

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
spathulate spatula-shaped; rounded and wider at the apex, tapering below
**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. Caules 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, 17–19 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-perted, 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, 3–17-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 ant sep al a 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.


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**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, ob lanceolate to linear-ob lanceolate, subobtuse 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-ob lanceolate, 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; cincinnus 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).
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 as ISI 1848, “E. shawiana × E. bifida.” It is not known if any of the plants still exist in collections.

Uhl 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. shawiana, 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. shawiana 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. shawiana (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:

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<th>E. LYONSI</th>
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<tr>
<td>Leaves</td>
<td>2–4 mm thick</td>
<td>3–5 mm thick</td>
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<td>Bracts</td>
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<td>Sepals</td>
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<td>Corolla</td>
<td>9 mm long</td>
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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.

ACKNOWLEDGEMENTS
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REFERENCES
1 Graptopetalum pentandrum ssp pentandrum 2 Peperomia kimmachi 3 ×Tacipetalum ‘Stardust’ 4 Graptopetalum paraguayense ssp paraguayense 5 Graptopetalum paraguayense ssp bernalense 6 Graptopetalum paraguayense (left) and ssp bernalense (right) 7 Peperomia dolabella 8 Graptopetalum saxifragoides variety saxifragoides.

More plants described by Myron

Photos by John Trager.