

PLANTAE ALPINAE NOVAE MEXICANAE: *SEDUM CHRYSICAULUM* (CRASSULACEAE)

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ABSTRACT

Recent explorations of the alpine-subalpine floras of northeastern Mexico have revealed several new species of *Sedum*. The most widespread of these, here described as *S. chrysicaulum*, approaches most closely *S. parvum* ssp. *nanifolium*, but is easily distinguished from the latter by persistent, pale yellow-green, dorsally sulcate leaves, petals 5.0–7.5 mm long, and a preference for habitats above timberline.

RESUMEN

Exploraciones recientes de las floras alpinas en el nordeste de México han dado luz a varias especies nuevas de *Sedum*. La especie mas ampliamente distribuida, *S. chrysicaulum*, aquí descrita, asemeja a *S. parvum* ssp. *nanifolium*, con la cual se distingue por hojas persistentes, verde-amarillentas pálidas, sulcadas en la superficie adaxial, pétalos 5.0–7.5 mm de largo, y por prefencia de habitats arriba de los límites arboreos.

SEDUM CHRYSICAULUM McDonald, sp. nov. (Fig. 1)

A *Sedo parvo* Hemsl. ssp. *nanifolio* (Frod.) Clausen caulibus infernis herbaceis foliis ellipsoideis dorsaliter sulcatis 5–6 mm longis petalis 5–7 mm longis et folliculis 4–5 mm longis differt.

Herbs perennial, cespitose, 3–7 cm tall, 2–20 cm wide, glabrous. Stems branching from base, ascending, 5–9 cm long, 1–2 mm in diam at maturity, yellow-green, glabrous, smooth; internodes somewhat longer in basal portions, 0.5–9.0 mm long; nodes occasionally rooting; roots fibrous. Leaves simple, sessile, narrowly ellipsoid, dorsally sulcate (flattened upon drying), 5–7 (–10) mm long, 2–3 mm wide, light green or rarely orangish, with occasional red spots, glabrous. Inflorescence in terminal, congested cincinni; flowers 2–8; sepals 5, broadly lanceolate, 4–5 mm long, 1.5–2.0 mm wide at base, pale green, coriaceous, glabrous; petals 5, erect, narrowly elliptic or lanceolate, 5–8 mm long, 2.0–2.5 mm wide medially, ca. 2 mm wide at base, yellow with occasional red-pigmented dots or longitudinal striations, glabrous; stamens 10, 5–6 mm long, terete, attenuate, ca. 0.5 mm wide in diam at base, filiform at apex, yellow; anthers ovoid, basally cordate, yellow; carpels 5, 6–8 mm long, 1.2–1.5 mm wide at base, yellow, glabrous. Fruit con-

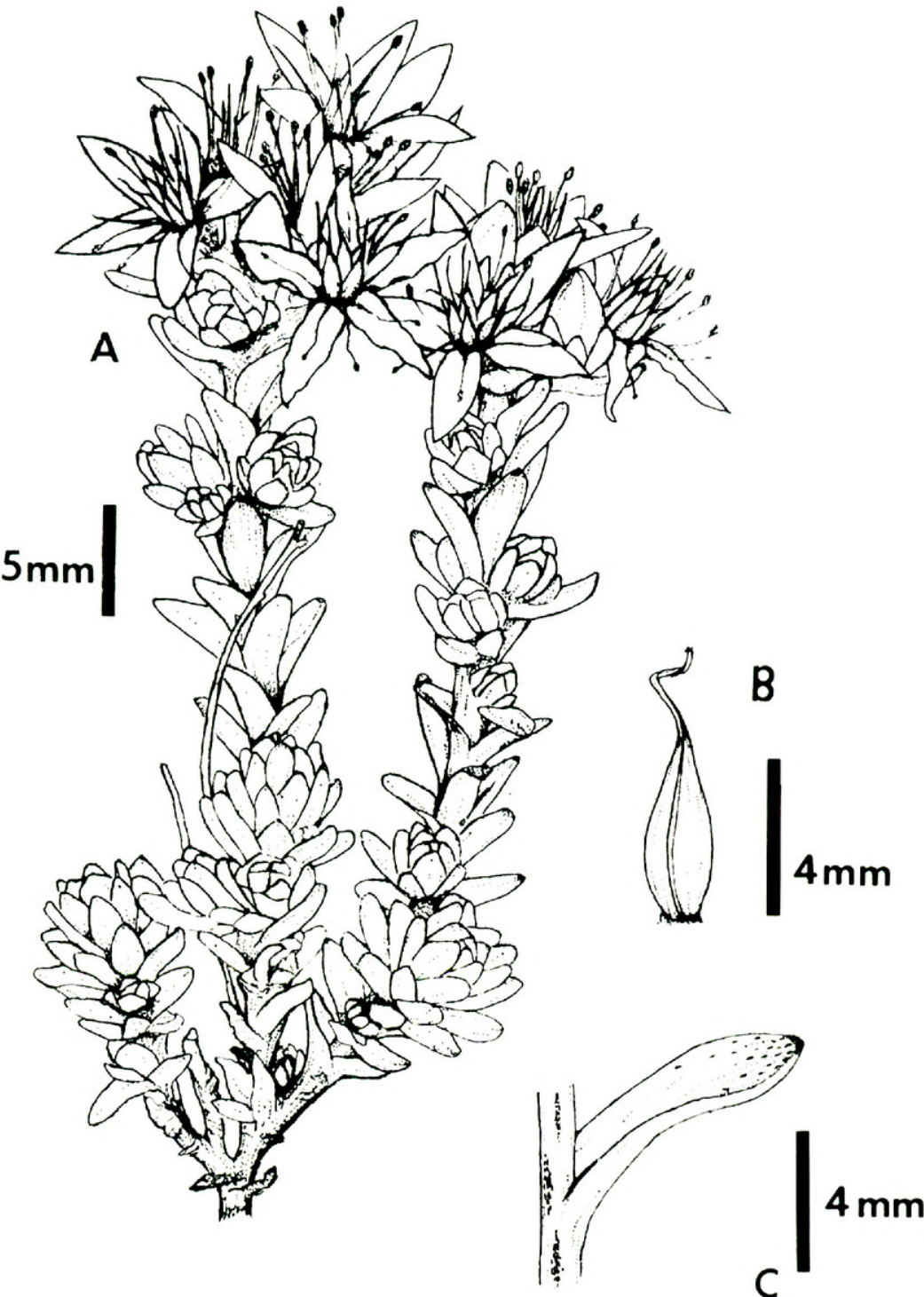


FIG. 1. Illustration of *Sedum chrysicaulum*. A. Growth habit. B. Mature follicle. C. Mature stem and leaf; note the red striations on the stem, and the red punctae on the blade.

sisting of 5 erect, free follicles, narrowly ellipsoid, 7–9 mm long, ca. 2 mm wide at base, often red-pigmented, glabrous, suture ca. 5 mm long, the style persistent, forming an attenuate apex ca. 2 mm long; seeds ca. 10, narrowly ellipsoid, 0.7–1.0 mm long, ca. 0.4 mm wide, brown, glossy, densely papillate.

TYPE: MEXICO. NUEVO LEON: Mpio. Rayones, summit of Sierra La Marta, eastern ridge-top in subalpine vegetation, ca. 3650 m, 24 Aug 1989, *McDonald & Mayfield* 2556 (HOLOTYPE: TEX; ISOTYPES: MEXU, NY, UAT).

Specimens examined: MEXICO. Coahuila: Mpio. Arteaga, summit of Sierra La Viga, 3700 m, 22 Aug 1986, *McDonald* 2099 (TEX); 24 Oct 1984, *McDonald & Gomez* 1157 (TEX, UAT); Mpio. Arteaga, summit of Sierra La Marta, 3600–3700 m, 31 Aug 1980, *Hinton et al.* 17977 (TEX); 4 Aug 1980, *Hinton et al.* 17919 (TEX); 25 Oct 1984, *McDonald & Gomez* 1242 (TEX); 22 Aug 1986, *McDonald* 2136 (TEX). Nuevo Leon: Mpio. Galeana, summit of Cerro Potosí, 3700 m, 19 Jun 1966, *Gilbert* 9 (TEX); 23 Aug 1984, *Lavin* 4787 (TEX); 14 Oct 1970, *Hinton et al.* 17303 (TEX); Mpio. Zaragoza, Sierra Peña Nevada, N of Picacho de San Onofre, 30 Nov 1984, *McDonald & Gomez* 1298 (MEXU, TEX, UAT).

Three species of *Sedum* in the alpine-subalpine vegetation of northeastern Mexico have yellow flowers and relatively short leaves (<6 mm), suggesting close relationships with *S. parvum* Hemsl. (*sensu lato*; Clausen 1978, 1979, 1981). Beaman & Andresen (1966) adopted the latter epithet for all of the *Sedum* collections from the alpine flora of Cerro Potosí, Nuevo Leon, despite the morphological and ecological distinctiveness of these populations in relation to the type population of *S. parvum* Hemsl. ssp. *parvum* from warm and semiarid regions near the city of San Luis Potosí (Clausen 1979). All three of the above-mentioned alpine stoneworts appear to be undescribed (McDonald 1990), but two must await formal recognition pending a critical study of the entire complex (Nesom, in prep). The most distinctive and widespread of these, occurring in all seven timberline refugia studied by McDonald (1990; Fig. 2), most closely approaches in morphology the low-elevational *S. parvum* Hemsl. ssp. *nanifolium* (Frod.) R. Clausen. *Sedum chrysicaulum*, here described, shares the following features with *S. parvum* ssp. *nanifolium*: smooth stems, flattened and/or sulcate leaves that often bear distinctive red markings, and yellow flowers. *Sedum parvum* ssp. *nanifolium* is distinguishable from *S. chrysicaulum*, however, by green or reddish, basally lignescent stems that often branch distally, flattened leaves, ovate to broadly elliptical, 2.5–3.5 mm long, generally deciduous at the base of stems and congested in apical regions of the stems, petals 4–5 mm long, and follicles 2–3 mm long. This and other subspecies of *S. parvum* recognized by Clausen (1978, 1979, 1981) generally occur in relatively arid, chaparral vegetation or pine-oak associations of northeastern Mexico and western Texas (Clausen 1978).

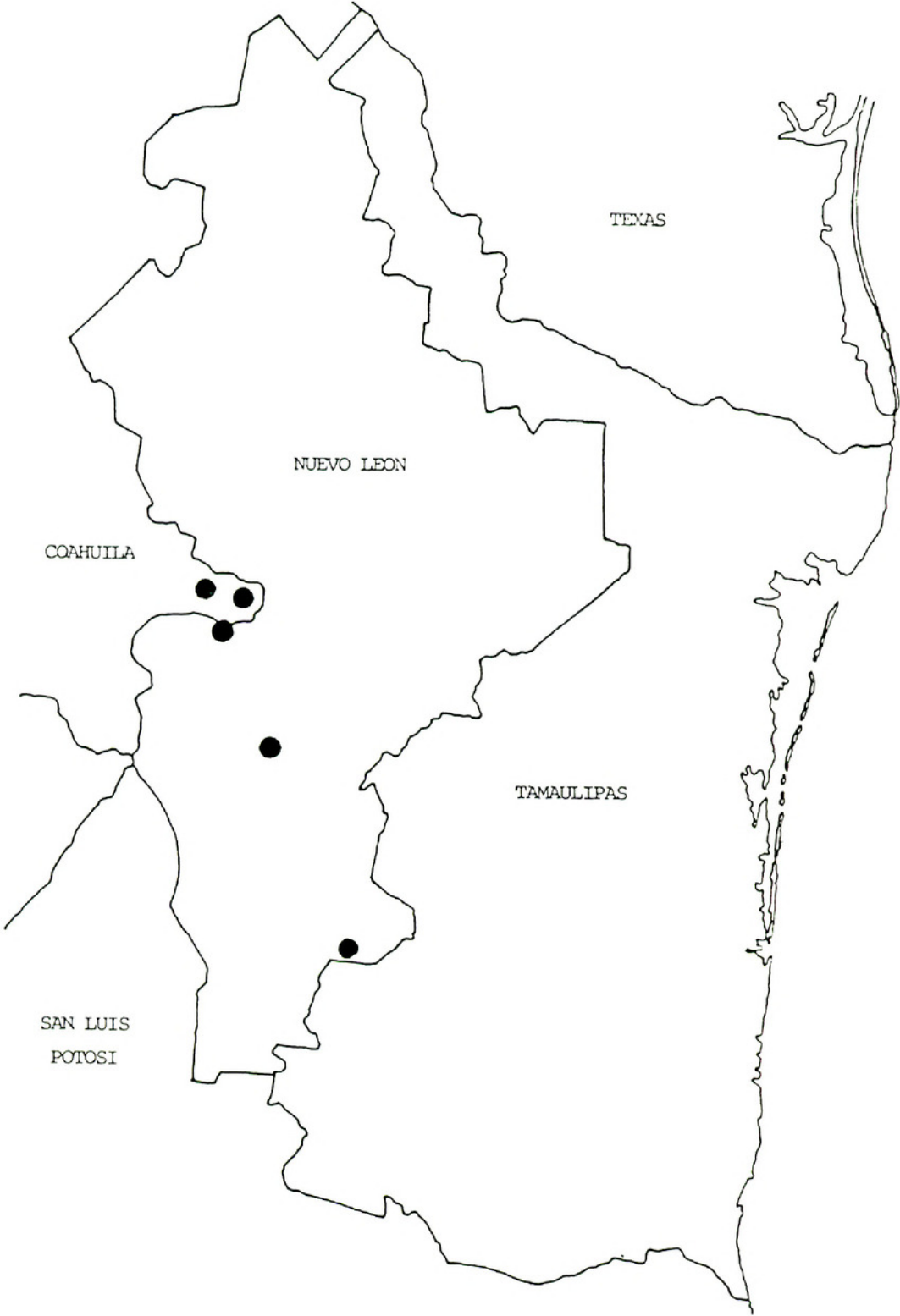


FIG. 2. Known distribution of *S. chrysicaulum*.

In contrast, *S. chrysicaulum* has herbaceous, light yellow-green stems that branch mostly from the base, leaves narrowly elliptic, dorsally sulcate (a feature commonly obscured by desiccation), 5–6 mm long, persistent and dispersed relatively evenly along stems, petals 5.0–7.5 mm long and follicles 4–5 mm long (Fig. 1). *Sedum chrysicaulum* generally occurs from 3400–3700 m in timberline and alpine vegetation of northeastern Mexico (Coahuila, Nuevo Leon, Tamaulipas; Fig. 2) as an associate of sub-alpine vegetation dominated by the genera *Arracacia* Bancr., *Castilleja* Mutis, *Erysimum* L., *Penstemon* Schmid., and *Senecio* L., and stunted individuals of *Pinus culminicola* Andresen & Beaman and *Pinus hartwegii* Benth. (McDonald 1990). Plants of *S. chrysicaulum* flower and fruit from June to October.

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