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**LOESELIA RZEDOWSKII, SP. NOV. (POLEMONIACEAE), AND RHYNCHOSPORA
JALISCENSIS, SP. NOV. (CYPERACEAE), FROM JALISCO, MEXICO**

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ABSTRACT

Loeselia rzedowskii, a new shrubby species with the habit of *L. mexicana* but with cream-yellow flowers, is described from Bolaños, Jalisco, and the nearby Sierra de los Huicholes, and *Rhynchospora jaliscensis*, with almost undivided style, thus referable to Kükenthal's subgenus *Haplostyleae*, is described as new from four localities in the mountains of Jalisco.

RESUMEN

Se describe *Loeselia rzedowskii*, sp. nov., una especie arbustiva, algo parecida a *L. mexicana* pero de flores de color crema-amarillento, descubierta cerca de Bolaños y en la Sierra de los Huicholes, Jalisco. También se describe *Rhynchospora jaliscensis*, sp. nov., de las sierras de Jalisco, una representante del subgénero *Haplostyleae*, de la cual se ignoran las relaciones a nivel de especie.

During a visit to Bolaños, Jalisco, in mid-January 1975, I ascended a canyon, then dry, in the steep west-facing escarpment that lies to the east of the old mining center north of the town. The slopes were covered by a dry deciduous forest dominated by species of *Acacia*, *Bursera*, *Jatropha*, and arborescent *Ipomoea*. In a narrow part of the canyon a few hundred meters above the mouth, locally abundant on rocks and cliff-faces was a small shrub with conspicuous flowers of a soft cream-yellow, and green anthers. It appeared to be a species of *Loeselia* (Polemoniaceae), in habit not unlike the common red-flowered *Loeselia mexicana*, though differing markedly from that species not only in the color of the corolla but in other ways. The plants were all in flower; I was not able to find any fruiting material. In the ensuing 15 years only one additional collection has come to my notice, that also a flowering specimen, so the fruit and seeds are unknown, but by putting the species on record now I hope to stimulate others to rediscover it. Doubtless the plant occurs in other places in the dry canyons of the river systems that flow into the Río Santiago from the north.

***Loeselia rzedowskii* McVaugh, sp. nov.**

Frutex 1-1.5 m altus, glanduloso-pilosus, aperte ramosus, ramis foliisque alternis; ramuli albidi, juventute dense pilosi, pilis apice pro parte glandulosis; folia caulina maxima

usque ad 6.5 cm longa, ramulina minora, rigidula, elliptica vel elliptici-ovata, base apiceque acuminata, cuspidata, marginibus conspicue serrulatis, dentibus 50-60 aristatis quoque latere ornatis; petioli 3-6 mm longi; folii superficies adaxialis nitida, minute bullata, parce pilosa; abaxialis plerumque pilosa, pilis eorum ramulorum similibus; flores in ramulis brevissimis terminales, involucrati; folia ramulorum appressa, confertim imbricata, quam caulina minora, intima calycem involventia, occultantia; calyx glaber, subcylindricus, 6 mm longus, lobis 5 aequalibus, triangulari-ovatis, cuspidatis 1.3-1.5 mm longis; corolla ochroleuca, 2.6-2.8 cm longa, anguste infundibuliformis, lobis 5 subaequalibus, spatulato-oblongis, ca 2 cm longis, apice rotundato 1.5 mm latis, byssaceis, pilis usque ad 1 mm longis; stamina 5, filamentis longe exsertis 4 cm longis, antheris botulliformibus, sub anthesi viridibus, siccis 2.5-2.7 mm longis; ovarium sub anthesi 2 mm longum, ovoideum, disco carnosio insidens; ovula 3 erecta oblonga 0.8 mm longa; fructus seminaque non vidi. Species in honorem dixi cl. Jerzy Rzedowski, amici et consilarii, qui dudum plantam diguetianam pro specie nova recognovit.

Shrub 1-1.5 m high, glandular-pilose, openly branched, with alternate leaves and branches, the nodes below the flowering tips usually not proliferous; branchlets whitish, in age smooth, at first densely pilose with soft several-celled partly gland-tipped hairs up to 0.5 mm long; leaves below the inflorescences bright yellowish green, stiff, elliptic or elliptic-ovate, the blades up to 6.5 cm long and 3.3 cm wide, but the larger ones mostly not persistent on flowering branches; smaller leaves crowded toward the tips of flowering branches, up to 5 cm long and 1.7-2 cm wide, acuminate at base and apex, cuspidate, conspicuously serrulate with 50-60 awn-tipped teeth on each edge, and a petiole 3-6 mm long; upper leaf-surface glistening, finely bullate, glabrous except along the principal veins or with scattered hairs; lower surface usually sparingly pilose with hairs like those of the branches; flowers terminal on leafy lateral branchlets 2-3 (-6) mm long, the leaves of these branchlets 8-12 below the flower, somewhat but not markedly smaller than the leaf subtending the branchlet; internodes of the floral axis very short (only the lowermost as much as 1-1.5 mm long), the leaf-blades appressed, the upper ones imbricated, progressively smaller and more etiolated, closely enveloping and hiding the base of the flower, the innermost ca 1.3-1.5 cm long, subhyaline with greenish white veins; calyx glabrous, with narrowly funnelform-cylindric tube ca 6 mm long and 1.5 mm in diameter, actinomorphic or nearly so, membranous, uniformly greenish-white, the intervals between lobes thinner in texture than the rest; lobes erect, appressed, triangular-ovate, cuspidate, 1.3-1.5 mm long (not including the cusp), 1.2-1.3 mm wide at base, without any constriction below the insertion of the filaments; corolla according to collector's notes "soft cream-yellow", 2.6-2.8 cm long, narrowly tubular-funnelform, the 5 lobes erect or slightly spreading, alike in size and shape, elongate, spatulate-oblong, 1.5 mm wide at the rounded apex, ca 2 cm long, the lateral sinuses apparently slightly deeper than the others but the corolla not appreciably bilabiate; lobes cottony-pilose near tips, especially on the margins, with tangled soft white collapsing several-celled hairs up to 1 mm long; stamens 5, alternate with the corolla-lobes, the filaments ca 4 cm long, inserted ca 4 mm above the base of the corolla and nearly parallel to it at base, the tips exserted 1-1.5 cm; anthers versatile, green when fresh, arcuate when dry (sausage-shaped), 2.5-2.7 mm long across the tips of the arc, 0.8-1 mm thick; style longer than filaments, straight, the 3 stigmatic branches at length spreading or recurved, ca 0.6 mm long; ovary ovoid, 2 mm long at anthesis, seated in a fleshy disk 1.5

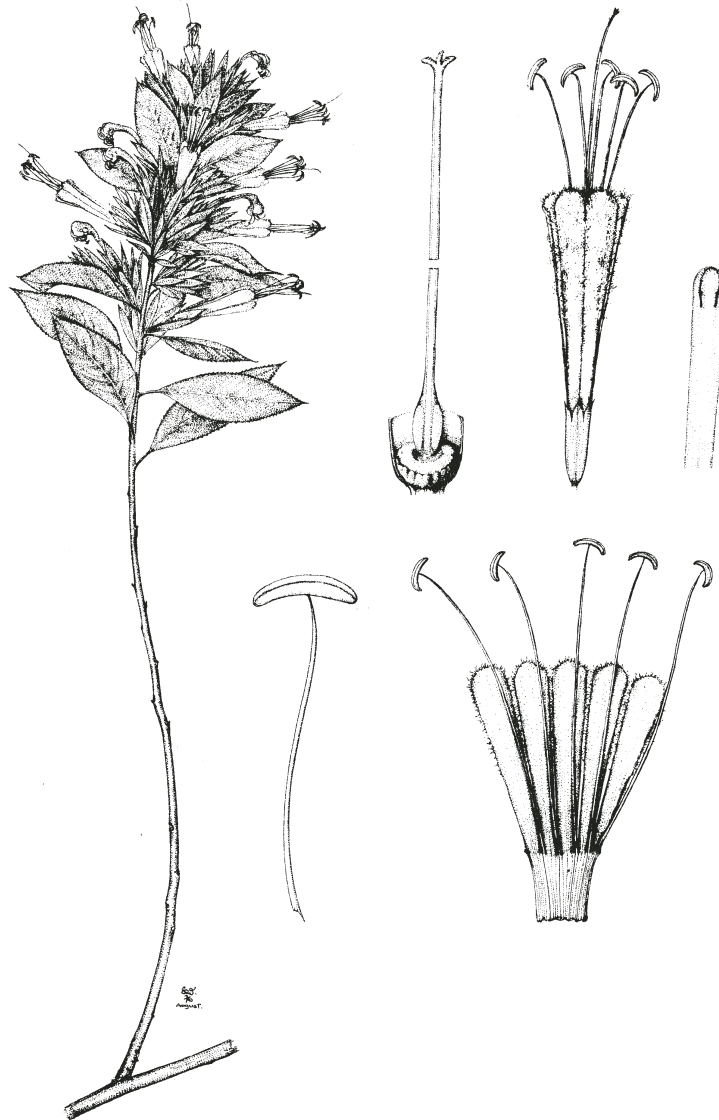


Fig. 1. *Loeselia rzedowskii*, drawn from the holotype by Karin Douthit. Flowering branch, X 0.5; flower, external view, X 1.5; corolla, internal view with stamens, X 1.5; anther, X 5; pistil, and interior of calyx at base, showing glandular disk and two ovules in position, X 5; style-tip, from a bud, showing the stigmatic lobes before separation, X 25.

or recurved, ca 0.6 mm long; ovary ovoid, 2 mm long at anthesis, seated in a fleshy disk 1.5 mm wide; ovules 3, erect, oblong-elliptic in outline, compressed, ca 0.8 mm long, 0.3 mm wide, not winged at this stage; fruit and seeds not seen.

Known only from northern Jalisco, in dry deciduous forest on shaded rocks, 1000-1150 meters above sea-level, flowering in January (? to March) in the dry river valleys in the northern part of the Santiago basin.

TYPE: México, Jalisco, above the mines N of Bolaños, precipitous west-facing slopes, on rocks and cliff-faces, 17-18 Jan 1975, *McVaugh 25830*, MICH, the holotype; isotypes to be distributed.

Additional specimen examined: "Sierra du Nayarit (Territoire Huichol) Etat de Jalisco", *L. Digue* s.n., without date, P. Little is known about where and when Digue collected in the "Territoire Huichol" (See Contr. Univ. Michigan Herb. 9: 228-232. 1972). He made several trips to this general area between 1986 and 1990. Some of the collections labelled as above were taken along the Río San Pedro, in Nayarit.

Though as noted above *Loeselia rzedowskii* is somewhat similar in habit to *L. mexicana*, the two plants are not very similar. In *L. mexicana* the leaves have but 8-20 teeth on each side above a long cuneate base; the bracts subtending the flowers are fewer and smaller, so that the calyx is usually at least partly exposed; the calyx is pubescent outside, morphologically like that of many other genera of Polemoniaceae (cf Grant, 1959, p. 24), that is to say with the green tissue confined to the lobes and the parts of the tube in line with the lobes, whereas a membranous, white, fragile tissue is developed in the sinuses and intercostal areas; the calyx lobes are nearly or quite as long as the tube, narrowly triangular and aristate, 3-5 mm long; the corolla, aside from being red, lacks the cottony hairs at the tips of the lobes, the lobes themselves tend to curve outward in the flower, and are much shorter than the tube; the filaments are inserted ca 7 mm above the base and the tube is markedly constricted below this; the anthers are about 1.8-2 mm long; there are about 20 winged seeds in each of the 3 locules of the capsule.

The newly described *L. rzedowskii* seems even less closely related to the mostly herbaceous species with purplish flowers that make up the major part of the Section *Loeselia* (Grant, 1959, pp. 114-115, 145-146). It seems apropos to repeat the words used by P.C. Standley (J. Washington Acad. Sci. 17:528. 1927) when proposing the name *Loeselia grandiflora*: "It is a surprise to come upon a new Mexican plant so thoroughly marked as this one". Probably *L. grandiflora*, which has opposite, sessile and cordate leaves, panicle inflorescence, involucre and white hypocrateriform corollas, is further removed from the rest of *Loeselia* than is *L. rzedowskii*. It was set up by Grant (p. 115) as a new monotypic section, *Glumiselia*. As in various other genera in different plant-families, however, it is interesting to find in the uplands of Mexico several species, in this instance all shrubby, all or mostly confined to limited geographical areas, that are so different from their supposed relatives that their distinctness is hardly a matter of opinion. Perhaps eventually we shall have enough data on such isolated taxa to permit reasonable speculation about the evolutionary pathways by which they came to be.

In 1952 and again in 1960 I found in the Sierra de la Campana between Los Volcanes and Mascota, Jalisco, in the pine-oak forests at elevations of 1800-2000 m above sea-level, a common sedge that proved to be a *Rhynchospora* unlike any other species represented in the larger herbaria in Mexico and the United States. Subsequently it has been found, in similar habitats, in the mountains above Bolaños, and in the Sierra de Manantlán. In preparing the treatment of the Cyperaceae for the *Flora Novo-Galiciana*, I renewed my efforts to find a name for it, ultimately deciding that it represented an undescribed species, probably more widely distributed in the mountains of western Mexico than we now know. In the last general revision of the genus *Rhynchospora*, that by Kükenthal (1949-1951), it would be assigned to the subgenus *Haplostyleae*, part A, *Anthelatae* (with style undivided or at most shortly bifid at tip, and the inflorescence variously divided, with several or many capitula). That group is treated as comprising five sections. In habit our plant would seem to belong with sections 4 and 5 because of its very narrow leaves, close narrow sheaths and culms very slender for their height, but it is excluded from both those sections by the presence of long stout perigonal bristles, and by its larger achenes which are never transversely rugose. Section 4 (*Racemosae*) is West Indian and South American, and section 5 (*Pseudocapitatae*) exclusively South American. The three remaining sections, mostly coarse plants with subampliate sheaths and broader leaves, all include at least one Mexican species. Our plant evidently does not belong in Section 1 (*Paniculatae*), in which the internodes (rachillas) between the flowers are conspicuously elongated. It is excluded from Section 2 (*Longirostres*), in which all but a few species have the style-base (beak) longitudinally sulcate or the achene excavate on the side, and the few remaining species differ markedly in one achene-character or another. It is excluded from Section 3 (*Polycephalae*), in which the spikelets are in dense globose heads, and the achenes transversely rugose.

Rhynchospora jaliscensis* McVaugh, sp. nov. *Haplostylearum

Herba perennis, rhizomatosa, fere glabra, tenuis, 60-90 cm alta, inflorescentia excepta simplex, culmis trigonis vel fere teretibus, foliosis, foliis caulinis linearibus 6-7, attenuatis, usque ad 30 cm longis, 0.8-1.5 mm latis, vaginis cylindricis truncatis; folia basalia 5-10 imbricata, laminis nullis vel brevissimis, vaginis triangularibus usque ad 4 cm longis; inflorescentia spiciformis vel anguste pyramidalis, 2-7 cm longa, 0.8-1.5 cm lata, paucifasciculata, fasciculis densis, in quoque fasciculo spiculis subsessilibus 2-5 appressis valde adscendentibus; spiculae pallide brunneae, fere teretes, lanceolatae, 5-7 mm longae, 1-3-florae, squamis graduatis, membranaceis, arcte involutis; squamae inferiores (basales) 2-4 vacuae, terminales hermaphroditae, intermediae 1(-2) fructigerae, ceterae ovario abortivo; stamina 3, filamentis cum stylo aequilongis; stylus apice breviter divisus; setae 6 pallide brunneae, antrorse barbatae, quam achenium duplo longiores; achenium crasse biconvexum, 2.1-2.5 mm longum, obovatum vel ellipticum, reticulatum, apice circumvallatum, rostro basi crasso plerumque triangulari acuto 0.8-1.6 mm longo.

Glabrous somewhat scabrelous perennial, in clumps of 10-30 arching culms, from short horizontal woody rhizomes 2.5-3 mm thick, producing single culms at intervals of 2-10 mm; culms 60-90 cm tall, slender, unbranched except in the inflorescence, leafy, trigonous to almost terete at apex and there 0.4-0.6 mm thick, at base somewhat bulbous-thickened,

1.5-2.5 mm thick including the old leaf-bases; lowermost leaves bladeless or essentially so, 5-10 of their sheaths (or their fibrous remains) closely imbricated, enveloping the base of the culm, triangular, up to 4 cm long; cauline leaves ca 6-7, more widely spaced above the middle of the culm, flat or somewhat folded, linear-attenuate, up to 30 cm long, 0.8-1.5 mm wide, their sheaths cylindric, tight, up to 3 cm long, ventrally at apex truncate, brown-scarious; inflorescence narrow, spiciform or narrowly subpyramidal, 2-7 cm long, often interrupted, 0.8-1.5 cm wide, consisting of a few groups (spikes) of 2-5(-15) spikelets each, appressed at irregular intervals along the axis, or the axis branched and producing 2 or more smaller and sometimes crowded sub-inflorescences; bracts of the inflorescence sometimes inconspicuous, but at least the terminal cluster usually subtended by an ascending leafy bract (the uppermost cauline leaf) up to 7 cm long, or in addition by 1-2 smaller bracts; spikelets sessile or short-pedicellate, crowded and strongly ascending in the individual spikes, yellowish brown, nearly terete, lanceolate, acute, 5-7 mm long, at anthesis 1-1.3 mm thick, in age swollen and split by the developing achenes; scales about 6, membranous, tightly involute, ovate with obtuse mucronulate tip, graduated in length, the outer much the shortest; 2-4 of the basal scales empty, each with a midrib, the innermost (longest) empty scale 4.5-5.5 mm long, when unrolled 3-3.5 mm wide; scales subtending bisexual flowers 1-3, only slightly longer than the longest empty scale, essentially nerveless, usually 1(-2) maturing fruit, the terminal flower mostly abortive; stamens 3, the filaments ca 4.5 mm long, the anthers linear, 3 mm long; style 4 mm long above the long dilated base, shortly bifurcate at apex; bristles 6, light brown, antrorsely barbate, 3.5-4 mm long, persistent; achenes plumply biconvex with no marginal line or thickening, elliptic to obovate in outline, 2.1- 1.5 mm wide, reticulate with ca 30 longitudinal rows of isodiametric or somewhat elongated areolae on each face, light brown, smooth and lustrous, truncate with an apical pale rim up to 0.7-1 mm wide; beak central within the rim, 0.8-1.6 mm long, very thick at base and nearly or quite as wide as the rim of the achene, very often triangular and narrowly acute, sometimes linear with acute tip.

Known only from Jalisco, on steep mountainsides in oak-pine forest, from 1800 to 2600 m above sea-level, flowering and fruiting from July to November.

TYPE: México, Jalisco, Sierra de la Campana, west of the summits, "7-8 miles" NW of Los Volcanes, 1900-2000 m, 23-25 Oct 1952, *McVaugh* 13679, MICH, the holotype; isotypes to be distributed.

Jalisco, known only from the following and the type: Sierra de Bolaños, road to Tuxpan, ca 30 km N of Bolaños (*Luquín, Ornelas and Santana s.n.*, 7 Oct 1981, IBUG); 25 km NW of Bolaños, brecha to Los Amoles, 2470 m (Santana Michel 1781, MEXU, WIS); Sierra de la Campana, "7-8 mi" NW of Los Volcanes (*McVaugh 20057* in 1960, MICH); Mpio. Autlán, Sierra de Manantlán, filo de San Rafael (*Cuevas R. 1357*, WIS, ZEA).

The tall slender nearly unbranched culms with narrow leaves and narrow short spiciform terminal clusters of spikelets give this plant an aspect unlike that of any other *Rhynchospora* in our flora, more grasslike than sedgelike.



Fig. 2. *Rhynchospora jaliscensis* (Drawn by Karin Douthit, from the holotype, except for the inflorescence at upper left from McVaugh 20057). Upper portions of flowering culms, X 0.5; rhizome and bases of culms, X 1; spikelets, X 5, the scales of the one at left distended by mature achenes; flower, X 10, with portion of bristle much enlarged; achenes, X 7.5; anther and part of filament, X 10.

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