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NOMENCLATURE OF THE CALIFORNIA
LUPINUS CONCINNUS-L. SPARSIIFLORUS
COMPLEX

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Ten years of intensive breeding studies of members of the Lupinus concin­
nus-L. sparsiflorus complex suggest the need for a number of nomenclatural
changes. The new names are being published at this time so that they shall be
available for use by other students of Lupinus. Type material of all of the taxa,
including those cited in synonymy, has been studied and photographed. The
authors are grateful to the curators of the herbaria cited below for the privi­
lege of examining these specimens.

1. LUPINUS CONCINNUS Agardh (subsp. CONCINNUS). Syn. Gen. Lup. Lund,
Sweden. 1835. (Fig. 1–1)

Type.—D. Douglas, California, CGE.—Iso­typ e.—K.

This taxon was described from a cismontane habitat in the south coast
ranges of California.

1a. LUPINUS CONCINNUS subsp. optatus (C. P. Smith) Dunn, comb. nov.
(Fig. 1–1a)

1921.—Type.—S. B. Parish 3055, Grass Valley, San Bernardino Co., Calif., US.

This is a montane subspecies, ranging from the San Bernardino Mts. south­
ward into montane Baja California, and occurs in both the Upper Sonoran
and Lower Transition zones of vegetation. It is larger, both vegetatively and
in flower size, than L. concinnus subsp. concinnus and the peduncles are obso­
lete. Flowering takes place one to two months later than in subsp. concinnus
or the desert subspecies, orcutti.

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NSF-GB 165.

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3 Present address, Wisconsin State University, Platteville, Wisconsin.
1b. **Lupinus concinnus** subsp. *orcuttii* (Wats.) Dunn, comb. nov.

(Fig. 1–1b.)


This taxon is the low desert subspecies ranging from northern Baja California and Sonora north to Utah and east to the Big Bend area of Texas. Although the material from Utah was named *L. micensis* by Jones, the intergradation and the presence of numbers of plants which are indistinguishable from the Orcutt specimen require that *L. micensis* be treated as a synonym.


The habitat of this cismontane species extends from Monterey Co., Calif., to Baja California. The taxon has been intersterile with all other taxa in the complex. Heller never was certain to which lupine the name applied and many of the specimens that he labeled as *L. agardhianus* are *L. congdonii* (C. P. Smith) Dunn.


The material from the eastern California desert is considered here only as a disjunct segment of the species, although there are slight differences. This taxon has been intersterile with the *L. concinnus*—*L. sparsiflorus* complex but it hybridizes quite readily with *L. arizonicus* and its relatives. Its complete isolation in nature is achieved by obligate self-pollination.

4. **Lupinus brevior** (Jeps.) Christian & Dunn, comb. nov.


This taxon ranges from Baja California north to Imperial Co., Calif., and south along coastal Sonora. It is essentially obligately selfing and has been shown to be intersterile with *L. sparsiflorus* and *L. Concinnus*, sensu stricto; the two taxa previously reported as interfertile are here transferred to other taxa.
Fig. 1. The number to the left of each row corresponds to the taxon as numbered in the text, i.e. 1, 1a, and 1b refer to *L. concinnus* and its subspecies and 5 and 5c are for *L. sparsiflorus* *sparsiflorus* and *L. sparsiflorus mohavensis* respectively. The illustrations are drawn to the mean value for the size and shape of each part. In row 1 (*L. concinnus concinnus*) from left to right are the lateral view of the entire flower, the banner (flattened out with the ventral side down), the wing, the keel, and the calyx (internal view); the bract and the average largest leaflet are just below the row at the right. The arrangement is the same for rows 1a and 1b and differs only for 5 and 5c in that the variation in stem and leaf pubescence, instead of size, is illustrated for both because the largest leaflets of both vary from 2.5–4.5 cm in length. The leaflet width and hairs are drawn to scale but the one enlarged hair, with scaberulous barbs, is drawn at a magnification three times the scale of the other drawings.
5. **LUPINUS SPARSIFLORUS** Benth. (subsp. **SPARSIFLORUS**). Pl. Hartw. 303. 1848. (Fig. 1–5)

*Type.*—Coulter, California, K.

Benthem described the plant as having been found with other lupines collected by Coulter, but he failed to mention a specific locality. However, the other identified lupines immediately preceding the type description of *L. sparsiflorus* were collected from Monterey to Santa Barbara and Ventura, apparently while Coulter was enroute from Monterey to Los Angeles. This implies cismontane southern California as the probable source of the type collection.

5a. **LUPINUS SPARSIFLORUS** subsp. **inopinatus** (C. P. Smith) Dziekanowski & Dunn, comb. nov.


This taxon is intermediate between subsp. *pondii* and subsp. *sparsiflorus*. It occupies cismontane and coastal slopes having bare or sandy gravelly soils, primarily in San Diego Co., Calif., and northern Baja California.

5b. **LUPINUS SPARSIFLORUS** subsp. **pondii** (Greene) Dziekanowski & Dunn, comb. nov.


This taxon is centered primarily on Cedros Island off the west coast of Baja California but appears on the peninsula in the mountains and on other islands approaching the southern border of California.

5c. **LUPINUS SPARSIFLORUS** subsp. **mohavensis** Dziekanowski & Dunn, subsp. nov. (Fig. 1–5c)

Erectus annuus 1–4 dm altus, ramosus ad basem, adpresso-pubescent et saepe pilis extensis 1–2.5 mm longis; foliolis 7–9, maximis 2.0–4.5 cm longis, 2–4 mm latis, lineari-bus saepe filiformibus, glabris vel supra stigosis, infra strigosis; floribus caeruleis, 8–11 mm longis; vexillo orbiculato et emarginato 7.5–10.4 mm longo, 7.5–11.5 mm lato; carina supra et sub ad basem paucociliata; ceterae ut *L. sparsiflorus*.

This is the desert subspecies which occupies the Mojave Desert of California and Arizona and extends into the state of Sonora, Mexico. It is similar to the species but is generally smaller vegetatively, and consistently smaller in the floral characteristics; and it has physiological traits that adapt it to the desert habitat. This is the taxon most American authors have misinterpreted as Watson’s *L. arizonicus* and are routinely labeling as a variety of *L. sparsiflorus*. It is the taxon that C. P. Smith was describing as var. *arizonicus*, but that name must go with Watson’s *L. arizonicus*, which is intersterile in all tests made to date with *L. sparsiflorus*. *Lupinus arizonicus* Wats. has yellowish pink to magenta flowers when fresh, but these become bluish when dry (reacting like litmus paper), whereas the flowers of *L. sparsiflorus* are blue when fresh and dry to a darker blue.

### A KEY TO THE CALIFORNIA TAXA

<table>
<thead>
<tr>
<th>A. Keel glabrous</th>
<th>B.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA. Keel ciliate above and/or below the claws</td>
<td>C.</td>
</tr>
<tr>
<td>BB. Leaflets linear spatulate, very sparsely strigose above or glabrous above; plants sparsely supplied with spreading pilose hairs; flowers blue-purple</td>
<td>L. agardhianus</td>
</tr>
<tr>
<td>BB. Leaflets spatulate-oblongate to oblanceolate to obovate, amply pubescent above; whole plant abundantly supplied with spreading pilose hairs; flowers pinkish white to lavender</td>
<td>L. concinnus</td>
</tr>
<tr>
<td>C. Flowers off-white to bluish or purplish, 5–7 mm long or less; plants usually less than 15 cm tall, commonly less than 10 cm</td>
<td>D.</td>
</tr>
<tr>
<td>CC. Flowers blue to pink or purple, 7–13 mm long; plants generally more than 15 cm tall</td>
<td>E.</td>
</tr>
<tr>
<td>DD. Plants sericeus to strigose, often decumbent or prostrate; leaflets pubescent on both sides</td>
<td>L. pallidus</td>
</tr>
<tr>
<td>DD. Plants appearing glabrous or with a few scattered pilose hairs; leaflets glabrous above</td>
<td>L. brevior</td>
</tr>
<tr>
<td>E. Flowers pink to magenta with a yellow center spot; leaflets obovate to oblanceolate with the tip rounded, fleshy in texture; plants appearing succulent</td>
<td>L. arizonicus</td>
</tr>
<tr>
<td>EE. Flowers blue or purplish, with a yellowish white center spot; leaflets linear to filiform, not fleshy; plants not appearing succulent</td>
<td>F.</td>
</tr>
<tr>
<td>FF. Flowers 10–13 mm long; cismontane Calif., Ventura to Riverside Counties</td>
<td>L. sparsiflorus sparsiflorus</td>
</tr>
<tr>
<td>FF. Flowers 7–11 mm long; San Diego Co., Calif., or the desert</td>
<td>G.</td>
</tr>
<tr>
<td>G. Banner oblong-oval, longer than wide; San Diego Co., Calif., and northern Baja California</td>
<td>L. sparsiflorus inopinatus</td>
</tr>
<tr>
<td>GG. Banner orbicular, emarginate, as wide or wider than long; desert areas eastward through Arizona into Sonora</td>
<td>L. sparsiflorus mohavensis</td>
</tr>
</tbody>
</table>