

Lupinus succulentus K. Koch, ARROYO LUPINE. Annual, taprooted, rosetted with spreading to ascending basal leaves, 1–several-stemmed at base, ± erect with spreading to ascending lateral branches, 20–110 cm tall; shoots with basal leaves and cauline leaves, short-strigose and strigose; roots large-nodulated. **Stems:** cylindrical with pair of faint lines descending from each leaf, to 30 mm diameter, somewhat fleshy, light green, short-strigose; hollow. **Leaves:** helically alternate, palmately compound with (3–)7–9 leaflets, long-petiolate without pulvinus, with stipules; stipules 2, fused to petiole several–15 mm from base, wings ascending, narrowly lanceolate to awl-shaped linear, 4–15 mm long, short-strigose; petiole cylindrical above stipules, 40–240 mm long, strigose, hollow most of length; petiolules short, with pulvinuslike function but not noticeably swollen, forming a ringlike disc and folded upward from midrib when young or water-stressed and at bases when old; blades of leaflets oblanceolate, 12–65 × 5–17 mm, dull green to bluish green, long-tapered at base, ± entire and strigose-ciliate on margins of young leaves with bases of hair persisting on older leaves, obtuse with a downwardly curved short point at tip (retuse), pinnately veined with conspicuous midrib raised on lower surface, upper surface glabrous, lower surface strigose. **Inflorescence:** raceme, terminal on primary shoots, to 450 mm long, densely 20–90+-flowered, with flowers in pseudowhorls of 4–6 flowers (sometimes pseudowhorls separating and not apparent), bracteate, puberulent; peduncle cylindrical, < 25 mm long, peduncle and rachis purplish turning green in fruit, hollow; bractlet subtending pedicel narrowly lanceolate, 4.5–6.5 mm long, purplish, typically keeled, deciduous but with a persistent base ca. 1 mm long, bractlet base becoming part of swollen pedicel in developing fruit; pedicel at anthesis 2–5 mm long increasing 2× in fruit, purple turning green in fruit. **Flower:** bisexual, bilateral, pealike (papilionaceous), 10 mm (= banner spreading) or 6 mm across (= banner folded forward or reflexed), 12–18 mm long; **nectary** nectar-producing receptacle below ovary, inconspicuous; **calyx** 2-lipped, 3-lobed, 4–7 mm long, purple and green, short-strigose; tube asymmetric, ± 2 mm long, saclike on upper side, appendaged; upper lip 2-lobed (toothed), ± 2.5 mm long, with lobes to 2 mm long; lower lip narrowly ovate, 4–5 mm long, keeled, entire, acute to acuminate at tip, with a pair of purplish; appendages at base 1 × < 0.5 mm; **petals** 5; banner ± roundish, 13–15 mm, strong violet with white, lavender, or pink (all white) and having inconspicuous, radiating violet veins, with midfurrow, initially folded and then briefly spreading but becoming permanent arched upward and strongly reflexed forming a pair of longitudinal ridges along midfurrow, central patch yellowish or yellowish green at base (partially revealed) and lavender to white above 2 ridges to white at tip, with a pattern of deep purple or red dots and dashes, glabrous or with some hairs on back surface, green portion on inner surface papillate; wings 2, weakly fused on straight outer margin (hiding part of keel) aging free, asymmetrically short-clawed, ± axe-shaped, ± 12 × 7 mm (including claw), claws ca. 2 mm long, greenish white, limbs deep violet on outer surface with conspicuous, radiating violet veins, lighter violet on inner surface; keel of 2 petals partially fused from midpoint to tip, clawed, 11–14 mm long, claws to 3.5 mm long, greenish white, light purple to whitish aging purple and deep purple below light yellow tip, conspicuously ciliate with white hairs on upper margins near shoulder and on free margins of keel from claw to midpoint; **stamens** 10, monadelphous (10 filaments fused into column), fused to base of banner; filament column ± 10 mm long, greenish white, tapering and somewhat compressed side-to-side, filament free portions unequal, 2–3 mm long increasing 2× after

anthesis (long stamens) and 2 mm long (short stamens), whitish; anthers basifixed, dithecal, 0.3–0.35 mm long (long stamens) and 0.4–0.6 mm long (short stamens), dark orange-yellow, longitudinally dehiscent first for short stamens while in bud; pollen dark orange-yellow, copious, sticky; **pistil** 1, ca. 10 mm long; ovary superior, oblong compressed side-to-side, 5–6 × 1 mm, green, densely pubescent with colorless to whitish, upward-pointing hairs, 1-chambered with ca. 12 ovules attached to upper side; style strongly curved, whitish, with hairs just below stigma asymmetrically longer on 1 side; stigma narrowly dome-shaped, minutely papillate. **Fruit:** pod (legume), dehiscent by 2 valves separating lengthwise or sometimes twisting to open, typically 9–12-seeded, linear-oblong, 35–65 × 7–9 mm, with soft hairs appearing silvery when immature, slightly arched outward at base. **Seed:** ± spheric-rectangular, ± 7 × 5 mm, dull mottled brown and tan. Mid-December–early June.

Native. Annual occurring commonly throughout the range, especially in disturbed habitats. *Lupinus succulentus* is easily recognized in vegetative condition because the stems are somewhat fleshy. This species typically begins to flower before the other lupine species in range, and populations can be dense, so that they provide a great display of bright color. Expect to see *L. succulentus* anywhere, because it is extensively planted from native seed mix and hydroseeded as an erosion control measure, often from seed sources that are not local to SMM.

B. A. Prigge & A. C. Gibson