

Lupinus microcarpus Sims var. *microcarpus*, CHICK LUPINE, VALLEY LUPINE. Annual, taprooted, rosetted, 1-stemmed at base, with ascending lateral branches, erect, 30–55 cm tall; shoots with basal leaves and cauline leaves, villous with fine hairs but swollen at bases, the base persisting after axis shed; roots nodulated; cotyledons half-round, fused around base (perfoliate) and persistent at least until flowering. **Stems:** ± cylindric, to 12 mm diameter, with a pair of low ridges descending from each leaf, somewhat fleshy, light green often becoming purplish red on exposed side; often aging hollow. **Leaves:** helically alternate, palmately compound with (5–)6–10 leaflets, petiolate without pulvinus, with stipules; stipules 2, attached to petiole base, wings 2.5–23 mm long, pale green to whitish, free portion spreading, narrowly triangular, 8–25 × 1–2 mm, villous-ciliate on margins, upper surface of free portion glabrous and lower surface sparsely villous; petiole cylindric and shallowly channeled at base, 20–110 mm long, > blade, villous, hollow from above fused stipules; petiolules pulvinuslike but not noticeably swollen 1–1.5 mm long, pale green; blades of leaflets oblanceolate, 12–45 × 4–13 mm, bright green, folded up from midrib when young or water-stressed, long-tapered at base, entire, obtuse to rounded or slightly pointed at tip, pinnately veined with only midrib conspicuous on lower surface, upper surface glabrous, lower surface villous. **Inflorescence:** raceme, terminal on primary shoots, erect, 250–400 cm long, 40–70-flowered, with flowers in well-defined whorls of (6–)7 flowers, whorls 30–35 mm wide, the main inflorescence sometimes with 7–11 whorls, the whorls spaced ca. 20 mm apart at anthesis increasing 2× in fruit, bracteate, villous; peduncle cylindric, 110–180 mm long, villous; rachis glabrous; bractlet subtending each pedicel, ascending and ± fused in whorl, free portion narrowly triangular and acuminate to lanceolate, 4–13 × 1.5–2.5 mm, green, villous on lower surface and margins, by anthesis turning light tan to whitish, reflexed and conspicuous in fruit; pedicel at anthesis 2.5–3.5 mm long increasing slightly and spreading in fruit. **Flower:** bisexual, bilateral, pealike (papilionaceous), 4–10 mm across, in range mostly light purple soon fading to very pale purple but on some individuals essentially white; **nectary** absent; **calyx** 2-lipped, 7–12 mm long, green, villous; tube asymmetric and ± saclike on upper side, 1.3–2 mm long, compressed side-to-side; upper lip 2-lobed, 2.5–4 mm long, centerline and margins colorless, lobes triangular, ± 1 mm long; lower lip entire or 2-lobed (asymmetrically 3-lobed), stiffly cupped-ovate, 8.5–10 mm long, becoming strongly creased above tube and ± keeled above crease, midfurrow sometimes purplish; sometimes with inconspicuous lateral appendage in 1 or both sinuses < 1 mm long; **petals** 5, appearing somewhat fused at base; banner from bud folded down and over keel and wings then spreading and arched upward 45°+, later strongly reflexed, round to rhombic-round, 11.5–15 mm, with a pair of longitudinal ridges along midfurrow clasping upper edges of keel and wings, light purple in late bud becoming very pale purple (white), whitish on upper palate and above, light yellowish to light greenish on lower palate, with deep violet dots and dashes on palate ridges, yellowish green and papillate at base; wings 2, weakly fused on outer margin (hiding part of keel) aging free, asymmetrically short-clawed, ± axe-shaped, claws 2.5–3 mm long, limbs light purple (white), with a series of crescent-shaped, transverse ridge between veins at base; keel of 2 petals partially fused, clawed, 10.5–14.5 mm long (including claw), limbs reddish purple (white) on 1/3–1/4 tip tinted yellow from pollen, paler between upper and lower edges, whitish to pale green with greenish veins

approaching base, conspicuously ciliate with white hairs on upper margin from top of claw to base of fused upper margin, glabrous on lower margin; **stamens** 10, monadelphous (10 filaments fused into column), fused to base of banner; filament column 6–7.5 mm long, white, tapering, filament free portions alternating long and short, 4–5.5 mm long (long stamens) and 3–3.5 mm long (short stamens), white; anthers basifixed, dithecal, 0.25 mm long (long stamens) and ca. 1.5 mm long (short stamens), orange-yellow, longitudinally dehiscent first with short stamens while in bud; pollen orange-yellow, copious, sticky; **pistil** 1, on stalk (stipe) < 1 mm long; ovary superior, lanceoloid compressed side-to-side, 3–4 × 1–1.5 mm, green, densely white-sericeous, 1-chambered with 2 ovules attached to upper side; style strongly curved, light to pale green, glabrous except for ring of short and long hairs just below stigma; stigma terminal, narrowly dome-shaped, yellowish green, minutely papillate. **Fruit:** pod (legume), in whorls at nodes, dehiscent by 2 valves separating lengthwise from base with each valve becoming cupped after fruits abscise (never twisting to open), 2-seeded, asymmetrically ovoid compressed side-to-side, 13–15 × 8.5–10 mm, typically not with bulging seeds, long-villous. **Seed:** ± oblong-lenticular, 4–4.5 × 2.7–3.4 mm, dull, mottled light brown and tan, with point next to hilum. Mid-March–mid-May.

Native. Annual growing in several very local, dense populations, on SMMNRA Paramount Ranch and King Gillette Ranch (SMM). *Lupinus microcarpus*, formerly locally called *L. subvexus*, is a very distinctive lupine with beautifully whorled flowers, and in this species the bractlets are fused as a whorl and conspicuous in fruit because they are strongly reflexed. Our populations have very pale flowers, which, from a distance, appear whitish, in contrast to much darker flowers in this species from other parts of California. The corolla for chick lupine is difficult to describe because there seems to be some fusion at the base. This should be called the two-seeded lupine, because no other species in the area has only two seeds. Because the legume is comparatively short relative to its width, each fruit valve is only cupped and the two valves are not strongly twisted, as in other lupines. The calyx and fused petals, as well as the bractlets, are persistent on the rachis after the fruits dehisce.

B. A. Prigge & A. C. Gibson