

Piperia cooperi (S. Watson) Rydb., CHAPARRAL ORCHID, COOPER'S STOUT SPIRE ORCHID. Perennial herb, geophyte with cormlike caudex, rosetted, 1-stemmed at base, scapose, unbranched, erect, in range to 60 cm tall; shoot with 2–8 basal to lower cauline leaves and several widely spaced bracts on lower peduncle grading upward to bractlets, glabrous; caudex ± spheroidal. **Stems:** cylindrical, to 4 mm diameter, straight, green, lacking stomates. **Leaves:** alternate distichous, simple with sheath; blade triangular to lanceolate, 80–200 × 8–31 mm, folded upward along midvein, entire, narrowly acute to acuminate at tip, parallel-veined, surface ± smooth. **Inflorescence:** spike, terminal, 300–560 mm long, with to 100 helically alternate, sessile flowers, bracteate, flowers remaining open many days after anthesis; peduncle-axis stemlike, cylindric, glabrous, with epidermal cells short and ± bladderlike in vertical rows; bracts along peduncle acuminate-lanceolate, decreasing upward; bractlets subtending flower 2, green, acuminate-lanceolate, outer bractlet ascending and ca. 6.5 × 2 mm (concealing most of ovary), inner bractlet (between flower and peduncle) ca. 1.3 × 0.7 mm and persistent (cupping base of ovary and fruit); pedicel < 0.5 mm long in fruit, whitish. **Flower:** bisexual, bilateral, 5–6.5 mm across, spurred, with ovary twisted 90–180° (± resupinate) so upper petal (lip) appears to be the lowest perianth segment, lightly scented like honey; **sepals** 3, ± free, arising from short tube above ovary, unequal, upper sepal ascending, triangular-ovate, 3.5 × 2.3 mm, each light yellowish green, 1-veined, fleshy but thinner on margins, upper surface with bladderlike cells (vesicular), lateral sepals spreading to recurved, slightly asymmetrically ovate, 3.6–3.8 × 1.7–1.9 mm and continuous with spur; **petals** 3, dimorphic, upper 2 petals ascending, triangular, 3–3.3 × 1.9–2 mm; lip (labellum = 3rd petal) descending, broadly triangular to deltate, in range ± 3.2 × 3 mm, fleshy and flat, with spreading lobes at base (hastate), spurred, the spur pointed back and down but curved outward, club-shaped (clavate), in range 6–6.5 × 1.3–1.4 mm, tapered toward rounded tip, internally producing nectar; **stamen** 1, fused into column with style and stigma, visible at throat, = 2 anther sacs (dithecal), each sac 0.9 × 0.6 mm, whitish aging orangey brown from tip downward; pollen in solid mass (pollinium) 2, 1 per sac, cream-colored, ca. 0.8 × 0.6 mm, with numerous sausage-shaped pollen clusters (massulae) connected by fine elastic threads into a narrow, grapelike cluster (sectile), each pollinium joined to 1 viscidium (sticky attachment to insect, 2 viscidia per flower) by a short stalk (caudicle); **pistil** 1, ca. 9 mm long; ovary inferior, twisted and curved 90–180°, narrowly ovoid, 8.5 × 2.5 mm, green, strongly 3-ridged, 1-chambered with great numbers of ovules attached to wall (3 parietal placentae alternate with ridges); style = part of column fused with stamen; stigmas 3-lobed, positioned below anther, lobes fleshy, triangular, central lobe purplish red, larger and more fleshy than lateral lobes. **Fruit:** capsule, loculicidal, dehiscent, many-seeded, ellipsoid to oblong with 3 rounded lobes or angles, 6–8.7 × 2.2–3.1 mm, yellowish ochre to golden buff, 3-veined with 1 prominent vein (dorsal) = lines of dehiscence or 3-ribbed. **Seed:** dustlike and easily airborne, irregularly oblong, 0.3–0.4 × 0.15–0.2 mm, golden buff, truncate at base, longitudinally deeply ribbed. April–late May.

Native. Herbaceous perennial discovered as one individual in range May 2011 by Jeff Hapeman growing along a trail in Red Rock Canyon (SMM) in chaparral dominated by *Adenostoma fasciculatum* and *Salvia mellifera*. *Piperia cooperi* has a spur that is short as

in *P. unalascensis* but instead curved downward.
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