Mirabilis jalapa L. var. ***jalapa***, FOUR-O'CLOCK, MARVEL OF PERU. Subshrub, winter-dormant, swollen-taprooted, several–many-stemmed at base, branched throughout and unequally 2-forked with axes divergent at each node, erect, 50–150 cm tall; shoots with paired leaves of slightly different sizes (anisophyllous, 1 blade 10–20% smaller), tomentose to short-tomentose sometimes becoming glabrescent; taproot often very large, fleshy-tuberous. **Stems:** 4-sided (cylindric) + swollen just above node, green, densely pubescent in broad vertical lines on 2 (opposite) sides, with a horizontal zone of shaggy reddish hairs across base of internode, internodes < 135 mm long, soft-hairy; appearing to have a pith with vascular (medullary) bundles. **Leaves:** opposite decussate, simple, petiolate, without stipules; petiole shallowly channeled, (2–)10–70 mm; blade deltate-ovate to ovate or lanceolate, 35–140 × 18–85 mm, slightly asymmetric with left and right halves different widths, truncate to rounded or subcordate at base, entire and slightly wavy on margins, acute to acuminate at tip, pinnately veined with the midrib raised slightly on upper surface and principal veins raised on lower surface, conspicuously soft-hairy when young with longer hairs persisting on margins and midrib. **Inflorescence:** leafy dichasial cyme, compact, mostly terminal but appearing axillary, secondarily also axillary, many-flowered, with opposite decussate branchlets, bracteate, tomentose; bract subtending each branchlet leaflike, short-petiolate to subsessile, narrowly ovate to lanceolate or linear-oblanceolate, decreasing upward, not glandular; pedicel 1–4 mm long, with involucre of bracteoles at tip; **involucre** subtending flower, 5-lobed, calyxlike, bell-shaped, short-tomentose, not glandular; tube at anthesis 2–4.5 × 2–3.5 mm increasing 2× in fruit, with conspicuously raised midveins; lobes 5, overlapping, ± unequal, triangular-acuminate, at anthesis 4.5–7 × 2–3 mm increasing 2× in fruit, spreading in fruit, pinnately veined, with persistent hairs on margins. **Flower:** bisexual, radial, ± 15 mm across, opening late afternoon and closing next morning; **perianth (calyx)** 5-lobed, showy, resembling a tubular corolla, 30–50 mm long, magenta-pink, yellow, or white, pleated; lower tube obovoid concealing ovary, ± 3 mm diameter, green with white flecks (raphides), 10-veined, becoming weakly 5-ribbed, glabrous or with hairs at constriction; upper tube narrowly funnel-shaped, ± 1.3 mm wide at constriction expanding gradually upward, green at base changing upward to pink, yellow, or white, sparsely hairy to glabrous, internally glabrous except with some colorless hairs at base, expanded part (throat) showy, 5-ribbed, the ribs terminating at sinuses with small tufts of hairs, sparsely hairy along ribs; lobes white with spots and lines to yellow aging magenta-pink, after closing collapsing into a sticky, crumbled mass at top of tube; **stamens** 5–6, fused at base forming a crownlike collar surrounding ovary, exserted; collar at base 1 × 2 mm, white,10-lobed with filament-bearing lobes alternating with rounded lobes, nectar-producing; filaments 20–35 mm long, below calyx constriction flat, whitish, exiting and just above constriction appressed and adhering to calyx tube, free filaments somewhat coiled, whitish aging pinkish or yellowish, glabrous; anthers dorsifixed, plump dithecal with each sac kidney-shaped, 1.3–1.7 mm long, light yellow to strong reddish orange, or strawberry red within same flower, ± scalloped on margin of suture, longitudinally dehiscent; pollen light yellow to light yellow-orange; **pistil** 1; ovary superior but appearing inferior because surrounded by thick perianth base, spheric, 1.5 mm, 1-chambered with 1 ovule attached to base; style long-exserted, 30–45 mm long, white and rose, highly coiled in bud; stigma broadly hemispheric-capitate, several-branched with ca. 100 stalked stigmatic spheres, initially

pale yellow aging orange and becoming pinkish at tips. **Fruit:** nutlike, dry and leathery becoming hard, indehiscent, with a spheroidal, 1-seeded fruit enclosed in the hardened base of calyx (diclesium, anthocarp); diclesium slightly obovoid to ellipsoid, 7–9(–11) × 5.5–6 mm, dull dark brown to nearly black, ± depressed around point of attachment and truncate at base, constricted just above base, sometimes nipplelike at tip, glabrous, in ×-section 5-angled with 5 blunt ribs alternating with 5 veins, somewhat warty between ribs, with whitish streaks (raphides) above midpoint. **Seed:** covered with thin fruit wall, tight-fitting, spheroid, 4–6 mm, tannish orange-yellow to cream; storage tissue (perisperm) pure white; embryo folded, cream-colored, the 2 cotyledons large, asymmetric, cupped, stacked, the radicle conspicuous. Late June–early September.

Naturalized. Perennial escaped from cultivation, first collected in 2004 on the northwestern boundary of range near Camarillo along a ditch but now known from several other locations, including at Pacific Coast Highway near Malibu. *Mirabilis jalapa* has an interesting, regularly patterned, three-dimensional shoot design with opposite decussate leaves and divergent branching. Leaves of a pair are slightly different in size (anisophylly), the left and right side of each blade are unequal, and the two diverging internodes at each node are unequal, with the thicker one being more erect and axillary to the larger leaf. Paired thickenings of internodes at each fork force the two shoots apart. From an axillary bud of the smaller leaf often arises a slender axillary reproductive shoot. The canopy of the plant basically is a repeatedly branched cyme (a dichasium) with a pair of leaflike bracts at each node. Flowers are produced in dense clusters having leaflike bracts beneath and within the dichasial cyme. The flower and fruit are difficult for the amateur to diagnosis because the ovary appears to be inferior beneath a showy corolla. At the end of a pedicel is an involucre of five fused bracteoles, frequently misinterpreted as being the calyx. In fact, the perianth (actually just calyx) arises below the ovary and at first tightly surrounds the ovary, so that may be mistaken therefore as the ovary; above the ovary the filaments and style pass through the narrow constriction. All this can be understood when the calyx is cut lengthwise, so that one can observe that the ovary is superior and totally hidden by and enclosed within the base of the calyx, with a narrow constriction at the top. In fruit, the portion of the calyx above the constriction rolls into a ball atop the developing fruit, so this reinforces the notion that this is an inferior ovary. The fruit (ripened ovary wall) instead is enclosed within the hardened base of the calyx, which simulates a fruit wall, and if the calyx tube is cracked open, the actual one-seeded fruit can be found within.

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