

Mucronea californica Benth., CALIFORNIA SPINEFLOWER. Annual, spinescent, taprooted, rosetted, acaulous, canopy = open and spreading inflorescence, in range < 10 cm tall, to 10 cm across; shoots with only basal leaves, sparsely short-pilose to pilose and glandular-puberulent, the glandular hairs < 0.2 mm long and with colorless spheric heads. **Stem:** not visible. **Leaves:** helically alternate, simple, petiolate, without stipules (no ocrea); petiole 5–10(–30) mm long, winged grading to blade; blade oblanceolate to obovate, 10–25(–50) × 2–8 mm, long-tapered at base, entire, rounded at tip, with midrib slightly raised on lower surface, sparsely short-hairy. **Inflorescence:** cyme of 1-flowered involucre, terminal (= canopy) with spreading principal branches, axis at the lowest node equally 2-forked or 3-forked, the next node often equally 2-forked, with (1–)2–3 involucre at each fork, at some flowering nodes unequally 2-forked producing a lesser branchlet or secondary branchlet suppressed, bracteate, soft-hairy and glandular-puberulent; peduncle absent; principal axes slightly zigzagged, sparsely short-pilose; bracts subtending each fork 3(–4), positioned to 1 side of node and flaring, fused to midpoint with awned, deltate lobes, to 10 × 8–13 mm (including awns), at upper nodes with deeper sinuses and narrower lobes, length < width, green with purplish red at base and along midvein, stiff and tough, veins to lobes and sinuses slightly raised on both surfaces, sparsely short-pilose and densely glandular-puberulent, the awns straight, 0.5–1.2 mm long; **involucre** subtending flower of (2–)3(–4) fused bractlets, urn-shaped with flaring, awned teeth; tube 3.2–3.8 mm long, aging with inconspicuous low ribs, having short hairs along ribs, glandular-puberulent; teeth short-villous, aging woody, the awns spreading, unequal, 0.1–2 mm long, often reddish to purplish red; pedicel elevating flower to become exserted and spreading from involucre, 1.5–1.8 mm long, with scattered glandular hairs. **Flower:** bisexual, radial, 4 mm across; **perianth** 6-lobed; tube cup-shaped, 0.4 mm long, green and striped, with scattered short hairs and glandular hairs; lobes 6 (tepals) in 2 whorls, ± monomorphic, obovate, 2.4–2.8 × 1.2–1.5 mm, white with dark purplish red midstripe (not reaching tip), entire or minutely jagged at tip, outer tepals hairy around midstripe, especially inner tepals minutely papillate on both surfaces; **stamens** 9, fused to perianth tube; filaments strongly looped in bud later erect and exserted, 1.8–2.2 mm long, white, purple at base along top of perianth tube, minutely papillate, glabrous; anthers versatile, dithecal, narrowly oblong, 0.5 mm long, dark purplish red, longitudinally dehiscent; pollen white. **Pistil** 1; ovary superior, oblanceoloid and 3-sided, ca. 1 × 0.35 mm, light green, 1-chambered with 1 ovule; styles 3, coiled before anthesis, 1.5–1.8 mm long, white, minutely papillate; stigmas minute capitate, pale pinkish. **Fruit:** achene dispersed within the dry, persistent, woody, awn-tipped perianth (diclesium), included, 2–3 mm long, paper (mature ovary wall) and blackish. Mid-April–late May.

Native. Annual rarely observed in range growing on sandy slopes along the coast. *Mucronea californica* is very distinctive in having a set of hard, fused bracts beneath the one-flowered involucre. The involucre is a three (four)-lobed, flaring structure with sharp awns on one side. Flowers of California spineflower are only four millimeters across but attractive, exserted from the three-awned involucre by a pedicel, and they exhibit pure white lobes (tepals) with purplish red midstripes. With high magnification one can see minutely papillate surfaces on stamen filaments, styles, and petal surfaces. The filaments

are nicely looped in the flower before the stamens become exerted and the anthers dehisce.

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