

**Draft key to the *Malacothamnus* (Malvaceae) of
Monterey, San Benito, San Luis Obispo, and western Fresno counties, CA
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Comments, corrections, and questions welcome at kmorse@rsabg.org

This key is based on dry specimen measurements. Estimated measurements for fresh material is included in [square brackets].

- 1. Inflorescence capitate to subcapitate.2
- 1' Inflorescence spike-like to panicle-like.4

- 2. Many rays of stellate trichomes on stem 1–3 mm; many simple glandular trichomes on stem, leaves and abaxial surface of calyx 0.3–1.4 mm, generally distinct at 20x magnification, occasionally sparse and difficult to detect; surface of stem and abaxial surface of calyx lobes generally easily visible through trichomes without magnification.*M. lucianus*
- 2' Most rays of stellate trichomes on stem <1 mm; glandular trichomes on stem, leaves and abaxial surface of calyx ≤ 0.1 mm, often only apparent as a resinous dot, much smaller than and often obscured by adjacent stellate trichomes; surface of stem and abaxial surface of calyx lobes often hidden by dense trichomes.....3

- 3. Adaxial leaf surface of mature leaves densely stellate hairy, centers of stellate trichomes average ≤ 0.25 [0.35] mm apart, rays of adjacent stellate trichomes generally overlapping across entire leaf surface; inflorescence with stipular bracts linear to lanceolate (rarely ovate) and unlobed, widest stipular bracts $\leq 6.5(9)$ [8[11]] mm wide. *M. palmeri*
- 3' Adaxial leaf surface of mature leaves sparsely stellate hairy or occasionally without stellate trichomes, if more densely hairy, centers of stellate trichomes average ≥ 0.5 [0.7] mm apart, rays of adjacent stellate trichomes not overlapping across entire leaf surface; inflorescence generally with lobed stipular bracts that are about as wide as long, widest stipular bracts $\geq(5)7$ [[6]8.5] mm wide measured below lobes.*M. involucratus*²

- 4. Calyx bracts ≥ 1 [1.4] mm wide.....5
- 4' Calyx bracts < 1 [1.4] mm wide.7

- 5. Calyx lobes $\geq 1.2x$ wider above base than at the base, ovate to widely ovate with abruptly acuminate apex; many stellate trichomes on stem with stipes, stipes ≤ 0.8 mm. *M. aboriginum*
- 5' Calyx lobes $\leq 1.2(1.4)x$ wider above base than at the base, triangular to ovate; most stellate trichomes on stem without stipes, stipes ≤ 0.3 mm.....6

- 6. Adaxial leaf surface densely stellate hairy in mature leaves. *M. abbottii*²
- 6' Adaxial leaf surface glabrous to sparsely stellate hairy in mature leaves.*M. involucratus*²

7. Mature leaves ashy green to bright green adaxially and often paler abaxially, \pm thinly yellowish to white stellate hairy, more densely so abaxially; leaf base generally deeply cordate, occasionally subcordate to truncate.....**8**
- 7' Mature leaves pale ashy green to light green on both surfaces, though often somewhat paler abaxially; densely white stellate hairy on both surfaces; leaf bases generally subcordate to cuneate (sometimes more deeply cordate in *M. fasciculatus* var. *nuttallii*).....**9**
8. Calyx bracts 1.5–3 [2–3.5] mm long; calyx stellate trichome rays \leq 0.5 mm (mean per plant 0.2–0.3 mm); plants generally 1–5 m tall; Monterey County and northern edge of San Luis Obispo County. *M. davidsonii*
- 8' Calyx bracts 2.5–8 [3–9.5] mm long; calyx stellate trichomes rays \leq 1.7 mm (mean per plant 0.3–1.0 mm); plants rarely > 2 m tall; eastern edge of San Luis Obispo County. *M. orbiculatus*
9. Calyx stellate trichome rays average \geq 0.5 mm. *M. niveus*
- 9' Calyx stellate trichome rays average \leq 0.4 mm.....**10**
10. Inflorescence spike-like; flowering March–May. *M. jonesii*
- 10'. Inflorescence generally panicle-like, if spike-like, population includes panicle-like inflorescences; flowering May and later.**11**
11. Calyx bracts and often flower buds reddish; leaves not lobed to obscurely 3-lobed.*M. gracilis*
- 11' Calyx bracts rarely and flower buds not reddish; leaves not lobed to clearly 3–7 lobed.**12**
12. Calyx bracts \leq 3.5(5) [4[6]] mm long and \leq 0.5 [0.7] mm wide; leaves generally clearly lobed and with a smooth surface; southern edge of San Luis Obispo County near Santa Maria, also widely planted..... *M. fasciculatus* var. *nuttallii*
- 12'. Calyx bracts \geq 3.5 [4] mm long and \geq 0.5 [0.7] mm wide; leaves not lobed to clearly lobed and with a rugose surface; Monterey County and introduced along southern border of San Luis Obispo County. *M. abbottii*²

Notes:

- Calyx bracts are a whorl of three bracts beneath each calyx. See figure below.
- Stipular bracts are stipule-like bracts between the calyx bracts and leaves.
- Glandular trichomes are simple, multicellular, and often with exudate at the tip. The exudate from these trichomes is sometimes seen on the stellate trichomes.
- Stellate trichomes are nonglandular and branched from a central point. Each branch is called a ray. When stalked, the stalk is called a stipe.
- A few species may also have simple or bifurcate nonglandular trichomes, presumably a reduced form of the stellate trichomes. The simple nonglandular trichomes are unicellular and easily differentiated from the glandular trichomes.

- Stem trichomes are best measured from the internode just below the inflorescence.
- Superscript indicates number of places this taxon comes out in the key if greater than 1
- See photos of all taxa on Calphotos website: <https://calphotos.berkeley.edu/flora/sci-M.html>



Fig_calyx_and_calyx_bracts. Some calyx and calyx bract variation. Arrows point to calyx bracts.