

Hoita macrostachya (DC.) Rydb., LEATHER ROOT. Perennial herb, robust, unarmed, several-many-stemmed at base, in fall dying back to woody caudex, main stems wandlike with lower leaves deciduous, typically unbranched below midpoint and branching often suppressed above midpoint, ascending to \pm erect, in range 100–460 cm tall; shoots soft-pubescent, gland-dotted, mildly fragrant. **Stems:** inconspicuously many-ridged, to 16 mm basal diameter, striped with conspicuous, colorless strips of support tissue (fibers), tough like rope, glandular with raised glands aging orange to reddish, covered with short white hairs and longer reddish hairs, internodes long, mostly 60–130 mm long; pith white becoming widely hollow via splitting. **Leaves:** helically alternate, pinnately 3-foliolate, petiolate with pulvinus, with stipules; stipules attached below pulvinus, long-acuminate, 1.5–5 mm long, green drying light brown, hairy, early-deciduous; petiole obscurely ridged above pulvinus, < 165 mm long, to 3.5 mm diameter, hollow, conspicuously red gland-dotted, pubescent with both types of hairs; rachis 10–45 mm long, hollow; stipel subtending leaflet absent; petiolule = pulvinus; blades of leaflets ovate to rhombic (rarely elliptic to lanceolate), in range 40–147 \times 20–100 mm, terminal leaflet typically slightly > lateral leaflets, rounded at base, entire, acute at tip, pinnately veined, densely villous, with domed, circular glands (visible with hand lens) when young transparent aging yellowish. **Inflorescence:** raceme (sometimes paniclelike when having a lateral branch at the lowest node), axillary from the uppermost nodes of a shoot, 140–350 mm long, relatively dense, > 40-flowered with groups of 2–3 flowers per node, bracteate, soft-hairy; peduncle ascending, to 160 mm long, >> leaf, striped like stem, with raised reddish to orange-amber glands; bractlet subtending each pedicel \pm rhombic and long-acuminate at tip, 3–11 mm long, gland-dotted, with purple veins, densely villous with many long, dark purple hairs, inner surface strigose, early-deciduous before flower opens; pedicel 0.5–1 mm long. **Flower:** bisexual, bilateral, pealike (papilionaceous), 4–6 mm across; **nectary** nectar-producing receptacle below ovary; **calyx** 5-lobed, 11–13 mm long, green, hairy and gland-dotted; tube oblique, \pm 3 mm long at lower lobe, 6–7 mm long between the uppermost lobes, faintly 10-ribbed; lobes acuminate, unequal, the lowest lobe 8.5–9.5 mm long and often 5 mm > other lobes, villous-pilose with white and dark purple hairs, greenish gland-dotted primarily on the lowest lobe; **petals** 5, clawed; banner claw ca. 1 mm, arched, limb roundish, 7–10 \times \pm 6 mm, back surface light green with rose venation and paler toward base, sometimes gland-dotted, front surface pale yellowish green to creamy white at base, with radiating plum or deep purple lines on upper portion; wings 2, claws 2.7–3.5 mm long, white, limbs 7–9 \times 2.5–4 mm, light purple with strong purple at tip; keel of 2 partially fused petals along lower edge, claws 3–3.5 mm long, white, limbs 5.5–6 \times 2.5 mm, white to purplish pink with deep purple inner surface only at tip; **stamens** 10, in bud fused but at anthesis diadelphous (9 filaments fused and 1 free), exserted; filaments 7–8 mm long nearly to tip, filament sheet curved upward, whitish, the eventually free, upper filament \pm 1.5 mm shorter; anthers basifixed and dorsifixed, dithecal, \pm 0.5 mm long, bright yellow, longitudinally dehiscent; pollen light yellow; **pistil** 1, slightly > stamens, short-stalked (stipe), stipe at anthesis \pm 0.3 mm long; ovary superior, narrowly ellipsoid compressed side-to-side, 2–2.5 \times 1.3 mm, green, strigose with white hairs, 1-chambered with 1 ovule attached to upper side; style cylindrical and curved as stamens, white-strigose below midpoint, with tuft of colorless hair beneath stigma; stigma hemispheric, pebblelike. **Fruit:** pod (legume), indehiscent, 1-seeded, narrowly obovoid to \pm D-shaped, compressed

side-to-side, in range $5-7 \times 3.5-4.5$ mm, slightly asymmetric with persistent, off-center style base (beak), net-veined, tannish with blackish specks, darker and thicker at base, lighter and \pm blistered or papery near tip, villous with white and deep purple hairs; inner wall translucent, stiff (chartaceous). **Seed:** narrowly obovoid compressed side-to-side, in range $4-4.8 \times 2.5-3.1$ mm, dull yellowish brown mottled with dark brown, smooth. Late June–mid-September.

Native. A very tall perennial herb occasionally found growing with western sycamore (*Platanus racemosa*) in riparian woodland of shady canyons of SMM, arising out of rocks along edges of creek beds. *Hoita macrostachya*, formerly treated as a species of *Psoralea*, has a large woody caudex with an extensive root system that taps into the water table. During summer drought, when stretches of a creek are dry, plenty of deeper water is provided to shoots with their large three-foliolate leaves, even during mid-July and August drought, when most flowering occurs. Shoots are pleasantly aromatic due to presence of scattered, raised glands (also on calyx), and the leaves are very soft-pubescent, and one can see the shoots are conspicuously hairy without having to use a hand lens. Exposed parts of the corolla are light and strong purple, and color needs to be noted immediately because pigmentation changes after it is picked. The fruit is slightly larger than the single seed and has a stiff inner fruit wall, a characteristic of this legume genus. Plants in range are much taller than generally described for this species. Our plants have wide, hollow, wandlike stems from which the outer layers can be stripped off and are strong enough to use as a natural fiber, as in certain species of *Crotalaria*. During the growing season *H. macrostachya* resembles a large shrub, but plants die back to ground level after producing their fruits, and the old stems break off during winter storms.

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