

## Vascular Plants of Williamson County

*Coreopsis tinctoria* var. *tinctoria* – PLAINS COREOPSIS [Asteraceae]

*Coreopsis tinctoria* Nutt. var. *tinctoria*, PLAINS COREOPSIS. Annual, taprooted, rosetted, 1-stemmed at base, typically with an erect principal axis and ascending pairs of flowering, lateral branches, in range to 80 cm tall; shoots with a pair of basal leaves and several pairs of cauline leaves, foliage finely dissected, pairs of leaves widely spaced, glabrous, mildly aromatic. **Stems:** initially ridged aging cylindrical, to 6 mm diameter, tough, with several ridges descending from each leaf, green later striped, internodes to 120 mm long; narrowly hollow. **Leaves:** opposite decussate, deeply odd-1–3-pinnately dissected with linear to narrowly elliptic-linear lobes, petiolate, without stipules; petiole broadly flared at base and channeled above, to 40 mm long, rounded on back, with minute, sessile glandular hairs with colorless heads; blade mostly to 90 × 70 mm, principal axis channeled, primary lobes 2–4 at axis ascending 45°, blade segments linear to threadlike, to 45 × 5 mm, entire to minutely toothed on margins, blunt acute to obtuse callus at tip, segments 1-veined with midvein sunken on upper surface and raised on lower surface. **Inflorescence:** heads, terminal, in open, cymelike arrays, the principal, paired flowering branches with 1–9 heads, the largest (1–)3×-forked with (1–)2–3 axes above each fork, head radiate, < 24–36 mm across, of 5–8(–9) neuter ray flowers and 40–100+ bisexual disc flowers, disc to 7 mm across, bracteate, glabrous; bract subtending lateral peduncle linear or weakly 3-lobed, to 4 × 0.4 mm; peduncle cylindrical flared approaching head, 20–35(–80) mm long, green, without bracts along axis, glabrous; bracts subtending involucre (5–)8 (calyculus) in 2 series, platelike, ovate, ca. 2 × 1 mm, ± greenish yellow with colorless margins and red-purple tip, with 2 fine, parallel veins to the tip, **involucre** phyllaries (5–)8 in 2 series opposite ray flowers, below midpoint platelike and outer series above midpoint recurved, phyllaries elliptic, ca. 6 × 2.3–3.2 mm, green at base, orange-red with red-purple margins above midpoint, finely parallel-veined with many veins at base; receptacle low-domed, with bractlets (paleae) subtending disc flowers and phyllaries subtending ray flowers, paleae erect, free from and not cupping ovary, linear and inconspicuously notched at tip, 4–4.5 × 0.3–0.4 mm, membranous aging scarious red-range above midpoint with a close pair of red-orange to scarlet parallel veins base-to-tips. **Ray flower:** bilateral, 4.5–7 mm across; **calyx (pappus)** minute pair of nubs at top of ovary = vestigial awns, < 0.1 mm long, white; **corolla** 3-lobed and broader central lobes shallowly notched; tube compressed front-to-back, 1 × 0.5 mm, yellow; limb obovate in outline, 8–14 × 4.5–11 mm, dark red-brown blotch below midpoint (the longest below central lobe) and yellow from midpoint with domed cells on upper surface, paler on lower surface with ca. 7 raised veins including 2 keels to sinuses from tube edges; **stamens** absent; **pistil** 1; ovary inferior, vestigial, roundish to obovate and strongly flattened front-to-back, 0.7–1.2 × 0.7–0.8 mm, greenish to whitish, lacking chamber and ovule; style absent. **Disc flower:** bisexual, radial, 1 mm across; **calyx (pappus)** of 2 nubs on top of ovary = vestigial awns, to 0.2 mm long, white; **corolla** 5-lobed, lacking hairs; tube cylindrical, 2–2.3 × 0.3 mm, yellow-orange; throat narrowly bell-shaped, ca. 1.5 × 0.4–0.6 mm, yellow-orange at base and reddish from below midpoint, somewhat glossy, with 5 veins to sinuses; lobes reflexed, ± deltate, 0.4–0.5 mm, dark purple-red, with domed cells on exposed (upper) surface; **stamens** 5, fused to corolla at base of throat, exerted ca. 0.8 mm; filaments ca. 1 mm long, light orange; anthers fused

into cylinder surrounding style, basifixed, dithecal, ca. 1.5 mm long, dark purple, with a deltate appendage at each tip, longitudinally dehiscent; pollen orange; **pistil** 1; ovary inferior, shield-shaped to elliptic with narrow wings and flattened front-to-back, ca. 1.5 mm long, white or blushed reddish near base, lacking hairs, 1-chambered with 1 ovule; **nectary disc** surrounding constricted base of style, barrel-shaped, 0.3–0.5 mm long, orange-yellow, producing nectar; style  $\pm$  4 mm long, 2-branched, the colorless lower portion narrow within nectary disc, bulbous just above disc and cylindric above, from below midpoint light orange but initially reddish orange branches, the branches at first appressed and erect within anthers, 0.5 mm long, elongating through anthers spreading and aging recurved, flattened on upper side, deltate and conspicuously papillate-hairy at tip. **Fruits:** cypselae (achenes) of only disc flowers, variable, cupped with conspicuous wings, 1.6–3.5 mm wide; fruit body obovate to elliptic biconvex,  $2.2\text{--}3 \times 1\text{--}1.45$  mm, black, inner face minutely textured with cells in longitudinal rows, outer surface having permanent, swollen bumps (tuberculate), with triangular callus on inner side; wings chartaceous, 0.1–1.05 mm wide, brown, not present across fruit body ends; pappus 2 vestigial awns, fingerlike to triangular, to 0.35 mm long.

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