

Vascular Plants of Williamson County

Hymenopappus tenuifolius – CHALKHILL WOOLLY-WHITE [Asteraceae]

Hymenopappus tenuifolius Pursh, CHALKHILL WOOLLY-WHITE. Biennial herb, thick-taprooted, conspicuously rosetted with ascending leaves, 1–2-stemmed at base, unbranched to flowering canopy, erect, in range 35–70 cm tall; shoots with many basal and lower cauline leaves in rosette (to 25 leaves) later internodes elongating (bolting) thereby having rosette leaves becoming cauline leaves, above with several additional upper cauline leaves, foliage deeply dissected with fine, feathery lobes, stem and leaves initially woolly and cobwebby with appressed hairs (often whitish) aging with strips of light yellow-green, having short-stalked glandular hairs hidden beneath wool; old root wood with brown bark. **Stems:** ridged, to 6 mm diameter, with 3 ridges descending from each leaf, tough lower stem aging woody, on old stem appearing striped with ridges sometimes aging purple-red alternating with appressed whitish woolly hairs, the lowermost stem hidden by persistent leaf bases. **Leaves:** helically alternate, deeply odd-2-pinnately dissected (rosette leaves) and odd-1-pinnately dissected (upper cauline leaves), rosette leaves petiole and to 140 mm long and newer cauline leaves shorter and sessile, without stipules; petiole flared at base, densely woolly (not appressed), above \pm hemicylindric flattish and not hairy on upper side and 3-ridged or 5-ridged and densely hairy on lower side, to midleaf or shorter, petiole $<$ blade; blade principal axis appearing channeled with riblike edges, to 1.5 mm wide, primary lobes alternating along axis, to 35 mm long, ca. 1 mm wide, with (0)1–6 forks forming threadlike, linear secondary lobes, ultimate lobes unequal $<$ 3–15 mm long, obtuse to rounded at tip, pinnately veined with 1 midvein per lobe, upper surface appearing glabrous to glabrescent and maturing light yellow-green having stomates and gland-dotted with sunken oil glands, lower surface appear channeled with raised midrib and \pm inrolled margins almost concealing narrow tissue with white hairs and many short-stalked glandular hairs between margins and midrib. **Inflorescence:** heads, many–100+ in terminal cymelike arrays, on young inflorescence often flat-topped but on broad, open array not flat-topped, appressed cobwebby-woolly and with scattered short-stalked glandular hairs; principal axis ridged; bract subtending primary branch diminutive leaflike with terminal lobe \gg paired lateral lobes, to 15 mm long, of the lowest primary bract often 7-lobed sequentially 5-lobed, 3-lobed, above only 1-lobed; bract subtending secondary branchlet only 1-lobed and awl-shaped; bract subtending peduncle mostly absent, appressed-linear or present below midpoint of peduncle (= bract of future peduncle); peduncle ascending and straight, $20\text{--}45 \times < 1$ mm but flaring at top, upper portion with 2–3 ridges descending from outer phyllaries, green with appressed white hairs and glandular hairs; **involucre** \pm top-shaped in outline, ca. $6 \times 4\text{--}5$ mm across, appearing angular in bud, phyllaries ca. 10 in 2 series, outer series of 2–3 phyllaries cupped awl-shaped and 2–3 mm long, $<$ inner series, inner phyllaries tightly appressing, cupped-obovate, ca. $6 \times 3\text{--}4$ mm, with thin tissue on upper margin, not showy, green tissue hidden by dense, appressed whitish nonglandular hairs and concealed, scattered glandular hairs, margins not wavy or rolled outward, phyllaries persistent and ascending to spreading in fruit; receptacle flat, without bractlet subtending flower (paleae), glabrous. **Disc flower:** bisexual, radial, 2.5–3 mm across; **calyx (pappus)** of 16–18 scales appearing in 1 series, at anthesis 0.4–0.7 mm long increasing after anthesis, mature scales ascending to erect, narrowly fan-shaped to obovate

or oblong, 0.8–1.3 mm long, scarious, upper margin jagged to shallowly cut, lacking terminally bristle, permanently attached; **corolla** 4–5-lobed (per head, mixed), at anthesis ca. 7 mm long; tube cylindrical, in range ca. 1.6×0.7 mm, light yellow-green, with scattered short-stalked glandular hairs; throat conspicuously short bell-shaped (or hemispheroid), in range 1.2–1.5 mm long and wide at orifice (wider on 5-lobed flowers), light yellow-green at base and colorless and somewhat papillate above with 10 veins, with scattered short-stalked glandular hairs; lobes initially widely spreading aging strongly reflexed, triangular-ovate, in range $\pm 1.6 \times 0.7$ –0.9 mm (wider on flowers having 4 lobes), white, lacking glandular hairs; **stamens** 4–5 (per head), attached to top of corolla tube, with anthers fully exerted from corolla throat; filaments erect, ± 2 mm long, white; anthers fused into cylinder surrounding style, basifixed, dithecal, 1.8–2.3 mm long including ovate appendages at top, whitish aging darker, outer surface especially of appendages and sutures with short-stalked glandular hairs, longitudinally dehiscent; pollen initially pale yellow aging whitish; **pistil** 1, ca. 9 mm long; ovary inferior, inversely pyramidal (obpyramidal), at anthesis ca. 2.5×0.7 mm, not conspicuously ribbed with 4 or 5 lines of short-villous hairs along future angles, 1-chambered with 1 ovule; **nectary disc** short barrel-shaped at top of ovary surrounding base of style, 0.3×0.5 mm, pale green, inconspicuously 4-angled or 5-angled, producing copious thin nectar; style 2-branched, after pollination with exerted branches ca. 5.5 mm long, translucent ca. 0.2 mm diameter, the stigmatic branches eventually arching over anthers, flat on inner side and convex on outer side, cream-colored. **Fruits:** cypselae (achenes), only a portion of flowers per head forming fertile fruits, disseminated with pappus scales and dried corolla, stamens, and style; cypselae inversely pyramidal (obpyramidal) conspicuously 4-sided, in range $3\text{--}4 \times 0.8\text{--}1.5$ mm, immature purplish red top-to-base drying dark brown, each face having fainter ribs with rib decurrent from each scale of pappus, angles densely short-hairy with ascending straight hairs (\pm short-hirsute), faces textured with parallel microridges between ribs and lacking hairs or with several short hairs along a rib; pappus of 16–18 persistent scales, the scales scarious, obovate, $< 0.8\text{--}1.3$ mm long, mostly jagged on top.

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