

Vascular Plants of Williamson County
Berlandiera pumila – SOFT GREENEYES [Asteraceae]

Berlandiera pumila (Michx.) Nutt., SOFT GREENEYES. Perennial herb (suffrutescent), not rosetted, several–many-stemmed at base, shoots erect to suberect, in range to 90 cm tall; monoecious; shoots with only cauline leaves, foliage bicolored green on upper surface and grayish green with denser hair on lower surface, suedelike having fine hirsute hairs with \pm swollen base. **Stems:** somewhat angled aging cylindric at base, to 9 mm diameter, with 3 low ridges descending from each leaf, tough, internodes to 85 mm long, densely matted with appressed woolly hairs. **Leaves:** helically alternate, simple, petiolate (lower leaves) and sessile (the uppermost cauline leaves), without stipules; petiole \pm hemicylindric, to 70 mm long, green sometimes with purplish streaks on flat side, tomentose; blade ovate to arrow-shaped in outline, (40–)60–90 \times (20–)30–70 mm, the lowest leaves conspicuously unequal at base with 1 side tapered and the indented side truncate, of most leaves symmetrically cordate with well-developed basal lobes, crenate on margins, obtuse to rounded at tip, pinnately veined with midrib raised on lower surface, upper surface with purplish red midrib and uniformly spaced hirsute-hairy, lower surface tomentose with much denser hairs. **Inflorescence:** heads, in terminal, leafy cymelike arrays, array of several–10 heads, heads radiate, 35–55 mm across, with 7–8 pistillate ray flowers and many disc flowers of 1 or 2 types, sterile pistils (at least some next to ray flowers) and central functionally staminate disc flowers, bracteate, hirsute; bract subtending peduncle leaflike and sessile, to 50 mm long decreasing along cyme, \pm truncate to cordate at base, lower surface densely tomentose and midrib densely white-hairy; peduncle at anthesis 10–50 mm long, tissue often reddish, densely tomentose, having some purple hairs approaching involucre; **involucre** hemispheroid to dish-shaped, 16–24 mm across, outer phyllaries 5 or 8 not associated with ray flowers, obovate, 7–13 \times 4.5–9 mm, pale green to midpoint and darker green above midpoint, with veins radiating from pale midpoint, inner phyllaries = ray flowers \pm 8 in 2 series, \pm fan-shaped, 9.5–12 \times 7–8.5 mm, pale green from base and dark green upper 1/3, initially loosely adherent to ovary fused only at base, exposed surfaces hirsute and hirsute-tomentose but glossy and glabrous on inner surface touching ovary, outer surface and parts of inner surface with inconspicuous glandular hairs; receptacle convex with conspicuous bractlets (paleae) subtending each disc flower, the outermost paleae ovate and enclosing ovary, \pm 5.5 \times 3 mm, the inner paleae oblanceolate and half-cupping ovary, to 4.5 mm long, dark red-purple from base with exposed portion green and densely hirsute, some glandular hairs on purple lower surface. **Ray flower:** bilateral, 6–12 mm across; **calyx (pappus)** a jagged fringe on rim of ovary, deep purple (maroon); **corolla** 2-lobed; tube < 1 mm long, greenish, densely hairy; limb \pm elliptic and sometimes somewhat inrolled, 12–20 \times 6–12 mm, notch 2–3 mm deep, upper surface deep yellow and glabrous, lower surface paler yellow with green veins and densely hirsute; **stamens** absent; **pistil** 1; ovary inferior, ovoid to top-shaped strongly flattened front-to-back, ca. 4.5 \times 3.5 mm, light green aging gray-brown, outer surface (touching phyllary) glabrous, inner surface hirsute, 1-chambered with 1 ovule; style exerted, 4–4.5 mm long, 2-branched below midpoint, yellowish below fork, the branches stigmatic, ascending to widely spreading, 3–3.5 mm long, deep purple, having glandular hairs (some short nonglandular hairs) on outer (lower) surface. **Disc flowers:** dimorphic, peripheral flowers

(or all disc flowers) with sterile pistil, central flowers bisexual but functionally staminate, radial, 1–1.5 mm across; of peripheral flowers, **pistil** cylindric, ca. 4×0.3 mm, white (reddish at base), hairy, with deep purple (maroon) bulbous rim at top (vestigial **pappus**); of staminate flowers, **calyx (pappus)** inconspicuous, crownlike, 0.05–0.1 mm long, deep purple (maroon); **corolla** (3–)4-lobed, narrowly funnel-shaped, ± 4 mm long; tube cylindric, ca. 0.4 mm long, white; throat red to deep purple (maroon), to midpoint 4-ridged on outer and inner surfaces; lobes nearly deltate, ± 0.5 mm, outer (lower) surface short-hairy; **stamens** 5, attached at top of short corolla tube; filaments ca. 2 mm long, orangish; anthers fused into cylinder surrounding style, basifixed, dithecal, 2 mm long, deep purple (maroon), longitudinally dehiscent; pollen orange; **pistil** 1, sterile, short-stalked; ovary inferior, narrowly wedge-shaped, ca. 1 mm long, greenish white, densely hirsute, lacking awns at top; style exserted 1–1.5 mm, 5×0.3 mm, unbranched, somewhat orange below, orange-yellow and puberulent where exserted. **Fruits:** cypselae (achenes), monomorphic (ray flowers), dispersal unit of inner phyllary (palea) with appressed cypselae and (1–)2–4 strongly cupped paleae and dried, sterile, short-hirsute ovaries of those disc flowers; phyllary strongly cupped (rounded on back), 9.5–12 mm long, brownish, cupped surface with short stiff hairs above midpoint; cypselae with black, short-fringed rim at top (vestigial pappus), obovate in outline, $4.5\text{--}6 \times 3\text{--}4$ mm, brown, turtle shell-like on phyllary side with a median ridge, inner side having a median ridge with 2 indented surfaces, hirsute on inner surface where hairs not removed; paleae of disc flowers somewhat twisted, brown to brownish, hirsute especially at top.

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