

Vascular Plants of Williamson County
Verbesina virginica – FROSTWEED [Asteraceae]

Verbesina virginica L., FROSTWEED. Perennial herb, robust, taprooted with somewhat fleshy old roots, not rosetted, 1–several-stemmed at base, principal stems mostly unbranched below flowering canopy, principal stems ascending to suberect (leaning), branches of canopy ascending to spreading, in range 35–220 cm tall; gynomonoeious; shoots with only cauline leaves, lower leaves withered or absent during flowering, foliage scabrous on upper surface and somewhat soft on lower surface, all surfaces pubescent, especially short-hirsute. **Stems:** cylindric with leaflike wings decurrent on internode from leaf (1)2 per leaf, to 12 mm diameter at ground level, vertical, bladelike wings 3–5.5 mm wide and wavy, axis green on large plants aging with periderm on lower stem with persistent short hairs, lower stem woody and easily broken, with solid, white pith; rarely during certain early winter morning, cut stumps of principal stems or lower stem splitting and producing delicate, 3-dimensional frost displays of frozen water vapor escaping stem conduits, vessels (water-saturated soil + high root pressure recharging vessels + clear night sky with subzero temperatures). **Leaves:** helically alternate (sometimes opposite at the lowest nodes), simple and sessile to short-petiolate, without stipules; petiole to 8 mm long (other authors treat winged lower blade axis as a petiole), densely short-hairy; blade elliptic or narrowly elliptic to ovate, < 120–300 × < 40–135 mm, highly variable on each plant with the largest blades around midplant, long-tapered to linear at base (= winged petiole), entire or with callus vein tips to serrate or dentate on margins, acute to acuminate-acute at tip, pinnately veined with principal and minor veins somewhat sunken on upper surface and principal veins raised on lower surface, upper surface scabrous with upward-curved short-hirsute hairs having enlarged bases, lower surface densely pubescent with softer short hairs and inconspicuous, minute, sessile glandular hairs. **Inflorescence:** heads, in terminal, domed to flat-topped, paniclelike arrays with a central cluster of many, tightly packed heads often later surrounded by terminal arrays of ascending axillary shoots, the display 60–250+ mm across, head radiate (discoid if ray flowers absent), in range with (0)1–3(–5) pistillate ray flowers and 8–13 bisexual disc flowers, bracteate, green structures short-hirsute with upward-curved hairs; bract subtending principal branch leaflike and sessile to subsessile, spreading, elliptic to ovate, to 50 × 14 mm, decreasing upward and subtending branchlets; axis of principal branch with long internode, umbel-like at top, densely short-hirsute with upward-curved hairs; bract subtending secondary branches and branchlets linear, of branches linear bracts to 12 mm long, of branchlets linear bracts to 6 mm long decreasing upward; peduncle indistinct, stemlike, often not subtended by bract, bract along peduncle linear and < 3.5 mm long; **involucre** ± top-shaped to bell-shaped or inversely conic, ca. 5.5 × 4–4.5 mm, phyllaries poorly defined in 2 series, outer phyllaries ca. 5 in 1 series not subtending flowers, oblong, 2–2.5 mm long, green, short-hairy on outer (lower) surface, inner phyllaries subtending ray flowers oblong-linear, to 4 mm long, green, somewhat cupped around flower (transitional to paleae), appearing as part of involucre bractlets (paleae) of the outer disc flowers; receptacle somewhat convex, with bractlet subtending each disc flower (paleae), palea oblanceolate to oblong bent and cupped around ovary edge and corolla, ca. 6 × 1.3 mm, greenish at base and whitish above with purple-red ± along bend (fold), outer surface short-hairy above midpoint, short-ciliate along midline. **Ray flower:** bilateral, 2.5–4 mm across (corolla limb); **calyx (pappus)** 2

awns, \pm equal, erect and straight, in range 1.5–3 mm long, barbed with short projections above midpoint and ascending, hairlike projections below midpoint, persistent aging straw-colored; **corolla** minutely 3-toothed with central tooth (mucron) to 1.1 mm long; tube cylindrical, ca. 2×0.5 mm, green at base and white above, short-hairy base to top and with inconspicuous, minute glandular hairs; limb widely spreading, elliptic, $< 5-8+ \times 2/5-4$ mm, pure white, with (5)7 faint veins from base, upper surface glabrous, lower surface with short hairs especially at base; **stamens** absent; **nectary disc** not apparent; **pistil** 1; ovary inferior, 4-sided wedge-shaped, ca. $2.6 \times 1 \times 0.5$ mm, greenish to pale tannish, with 2 narrow edges (inner and outer) short-ciliate, not winged at anthesis, faces with ascending short hairs, 1-chambered with 1 ovule; style inversely club-shaped at base, ca. 3.5 mm long, green at base and white above, glabrous, 2-branched, the stigmatic branches exerted above anthers and ascending, widely spreading later recurved, ca. 1 mm long. **Disc flower:** bisexual, radial, 2–2.5 mm across (corolla), 6–7 mm long (pistil); **calyx (pappus)** 2 awns, \pm equal, erect and straight, in range 1.5–3 mm long, barbed with short projections above midpoint and ascending, hairlike projections below midpoint, persistent aging straw-colored; **corolla** 5-lobed, ± 5 mm long, white but greenish at base, short-hairy on outer surface nearly to lobe tips; tube 1 mm long, lower portion enlarged around nectary disc; throat cylindrical to narrowly funnel-shaped; lobes widely spreading, triangular, 0.65–0.8 mm, after pollination aging pale yellowish; **stamens** 5, attached at top of corolla tube; filaments linear and flattened, 2.2–2.5 mm long; anthers fused into cylinder surrounding style, 1/3-exserted, basifixed, dithecal, 1.8–2.3 mm long including erect, ovate appendages, purple-red, longitudinally dehiscent; pollen white; **nectary disc** surrounding base of style, 0.3–0.35 mm long, greenish, with many minute teeth around top, producing copious nectar; **pistil** 1; ovary inferior, 4-sided wedge-shaped (compressed inversely triangular), $1.8-2.6 \times 1-1.3 \times 0.5$ mm, greenish to pale tannish, with 2 narrow edges (inner and outer) short-ciliate, not winged at anthesis, faces with ascending short hairs, 1-chambered with 1 ovule; style slightly enlarged at base, 5 mm long, white but green only at base, glabrous, 2-branched, the stigmatic branches exerted above anthers and widely spreading later recurved, 1–1.5 mm long. **Fruits:** cypselae (achenes), monomorphic of ray and disc flowers, conspicuously winged and with 2 erect awns with wing absent between awns, with wings \pm inversely broadly arrow-shaped in outline, $4-6 \times 2.5-3.3$ mm; fruit body narrowly obovate in outline truncate at top, $4-5.5 \times 1.5-2$ mm, dark brown to black, convex on 2 faces each with midrib and 1–2 lateral ribs and scattered, stiff, upward-pointing short hairs; wings scarious, 0.35–1.1 mm wide, light brown (disc flowers) and pale straw-colored (especially ray flowers), short-ciliate especially above midpoint; awns \pm equal and normally straight, stiff, 1.5–3 mm long.

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