

Vascular Plants of Williamson County
Viola missouriensis – MISSOURI VIOLET [Violaceae]

Viola missouriensis Greene, MISSOURI VIOLET. Perennial herb, rhizomatous, fibrous-rooted, rosetted, acaulous, forming small clumps, in range to 12 cm tall; shoots rosettes with only basal leaves, glabrous. **Stems:** hidden by bases of basal leaves, ± vertical, old stem with closely spaced ledges of former leaves; aboveground stem absent. **Leaves:** helically alternate, simple, long-petiolate, with stipules; stipules 2, attached to stem at node, partially sheathing, long acuminate-lanceolate, 8–12 mm long, membranous aging papery; petiole 2-ridged becoming channeled above midpoint, to 90 mm long, with ridge continuous with margins of basal blade lobes; blade ± broadly arrow-shaped with 2 basal lobes, < 30–70 × < 25–55 mm, < petiole, cordate to subtruncate at base, low-serrate on margins, acute at tip, 3-veined at base and pinnately veined with principal veins sunken on upper surface and raised on lower surface. **Inflorescence:** solitary flowers axillary to several basal leaves, flower types 2, aboveground and elevated above leaves (chasmogamous) and beneath the plant next to soil and that never open (cleistogamous), bracteate, glabrous; peduncle (pedicel) of chasmogamous flowers, appearing cylindrical with channel from top nearly to base, to 150 mm long, to 2 mm diameter, ± hooked approaching flower = flower horizontal, white at base and light green above, having 2 subopposite bracts (bract + bractlet) below midpoint, bracts appressed or nearly so, acuminate to awl-shaped, 5–7 mm long, light green, with 1 short-fringed flange to 0.5 mm wide at base; peduncle (pedicel) of cleistogamous flower stiffly hooked approaching flower, cylindrical, 30+ mm long, white streaked purple but hook (pedicel) purple, with bractlet subtending hooked pedicel, bractlet narrowly triangular, 2 × 0.8 mm, white. **Chasmogamous flower:** bisexual, bilateral, 18–25 mm across; **sepals** 5 appearing in 2 series, outer 3 sepals appressed, inner sepals arching above midpoint, in range oblong-lanceolate to lanceolate, mostly 8.5–10 × 2–2.8 mm, light green with narrow membranous margins, outer sepals sometimes slightly sickle-shaped and with semicircular basal lobe (auricle) ca. 1 mm long, entire, acute to obtuse at tip, inner sepals lacking basal lobe, 3-veined at base, upper (inner) surface flat, lower (outer) surface with midvein raised and thickened at base; **petals** 5, heteromorphic, upper 2 and lateral 2 petals widely spreading, obovate, ± 15–16 × 7–8.5 mm, basal portion cupped inward, 5–6 mm long, upper surface greenish to pale green, middle portion greenish to white with to 10 violet-blue nectar lines arising above midpoint, expanded upper portion light violet-blue with darker, branching veins, paler on lower surface, lateral petals middle portion with a conspicuous beard of white hairs to 3 mm long; lower petal ca. 21 mm long, with a broad, backward-pointing, inflated spur 4.5–5 mm long and height, greenish white with pale violet marks, limb obovate, 8–8.5 mm wide, lacking beard, lower portion pale green changing to white, above midpoint with violet-blue nectar lines and light violet-blue approaching tip; **stamens** 5, free, ca. 4.5 × 1.6–1.8 mm, obovate in outline and winglike, with anther sacs on inner surface; filament short and flat beneath anthers; anthers ca. 2.5 mm long, whitish, longitudinally dehiscent to sides, with winged margins minutely ciliate to midpoint, at tip with erect semicircular appendage, the appendage membranous, orangish with dark orange edge, waxy; pollen white; **nectaries** on lower 2 stamens, each with a vertical-oriented, backward-pointing ovate flange arising on outer side of stamen and projecting into spur of lower petal, 3–3.5 × 2.5 mm, pale green,

papillate-puberulent; **pistil** 1; ovary superior, conic, ca. 3.5×1.6 mm, green minutely papillate-hairy, 3-chambered, each chamber with 2 rows of ovules; style off-center at top of ovary and ascending, club-shaped, ± 2.5 mm long, white, stigma truncate, with shallowly lobed, light green stigma 1 mm across. **Cleistogamous flower:** bisexual, bilateral, ovoid (closed perianth), 5×2 mm, purple; **stamens** 2, fertile; pollen pale yellow; **pistil** 1, ca. 2.2 mm long; ovary superior, ovoid, 1.4×1.2 mm, greenish at base but overall white with purplish speckles, glabrous; style hooked and coiled, with stigma touching fertile anthers. **Fruit:** capsule, of chasmogamous flower, with 3 widely spreading valves, to 55-seeded, broadly ellipsoid 3-sided and ± 6 -lobed, $7.5\text{--}13 \times 6$ mm, greenish white to tannish light brown, glabrous, with or without spreading, persistent style (beak) at top, valves boat-shaped, drying tan, each with a pair of lateral furrows, inner valve glossy with to 19 seeds attached to midline (parietal); sepals appressed to lobes, lanceolate, 5–7 mm long, with basal lobe and raised midridge; veins darker, persistent at top of suberect peduncle above foliage, 85–110 mm long, white, with a few awl-shaped bracts near midpoint, bracts 1.5–2 mm long, white. **Seed:** with aril, obovoid, ca. $2 \times 1.2\text{--}1.3$ mm, pale orange-brown drying mottled and with tan to whitish specks, hard, before drying with minute blisters; aril lateral from point of attachment, fleshy, 0.3–1 mm long, whitish, oil-rich.

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