

Vascular Plants of Williamson County
Phyla nodiflora – FROG FRUIT [Verbenaceae]

Phyla nodiflora (L.) Greene, FROG FRUIT. Perennial herb, clonal, rhizomatous, fibrous-rooting, with trailing stems rooting at buried nodes, prostrate to procumbent, typically 2.5–30 cm tall; shoots \pm appressed-hairy with 2-armed (T-shaped) hairs, glandular hairs absent, not aromatic. **Stems:** \pm cylindrical to 4-sided (very young), to 3 mm diameter, tough, flexible, inconspicuously striped, internodes of prostrate stems typically 10–35 mm long, often with buds of adventitious roots on lower side. **Leaves:** opposite decussate, simple, short-petiolate with pairs connected by low ledges across node, without stipules; petiole $<$ 2.5 mm long, \pm indistinct from blade, appressed-hairy; blade oblanceolate to elliptic, (5–)10–30 \times 3–12 mm (early season leaves often very small), bright green, broadly tapered to long-tapered at base, serrate on margins typically with $<$ 6 teeth per side above midpoint, acute to obtuse or rounded at tip, pinnately veined with midrib raised on lower surface, appressed-hairy, the 2-armed hairs evenly spaced in tiny depressions. **Inflorescence:** headlike spike, axillary on long peduncle, 1 per node alternating side-to-side at successive nodes, many-flowered, initially spheric becoming cylindrical, 5–20 \times 4.5–8 mm, flowers aligned in 8–10 vertical rows and tightly whorled, each whorl with 4 or 5 flowers, densely bracteate; peduncle ascending, cylindrical, 4–70(–90) mm long, not flaring just below spike, hollow, appressed-hairy with arms of hairs vertically aligned; rachis hidden by flowers and bractlets, with 2-armed hairs on upper side of each flower; bractlets overlapping and closely spaced, basal bractlets opposite decussate, appressed, rhombic to ovate, 1.7–2 \times 1.7–2 mm, at the first node mostly green with membranous margins often purplish, at whorled nodes \pm inversely trowel-shaped, 2.5–3.2 mm long, light green or whitish at base then mostly purple or lavender on exposed surface above midpoint with purple membranous margins, appressed-hairy on exposed surface with arms spreading parallel with long axis of bractlet, long-tapered to broadly tapered at base, sometimes minutely toothed near tip, broadly acuminate at tip, becoming cupped over fruit. **Flower:** bisexual, bilateral, 3–3.5 mm across, 3–5 mm long; **calyx** 2-lipped, strongly compressed front-to-back with lips lateral, 1.5–2.3 mm long, \pm keeled, mostly pale green but with lavender on lip tips, puberulent to \pm villous with unbranched, 2-armed, and some hooked hairs, the hairs long along keel, the hairs on lips often lavender; tube without ribs or conspicuous veins; lips acute, $<$ 1/2 calyx, the split between lips deeper on outer than inner side; **corolla** 2-lipped, 4-lobed, to 2.7 mm long, white (dark lavender) aging light lavender, persistent, with spreading, unequal lips; tube narrowly funnel-shaped, 1.8–2.2 mm long (\pm = calyx), slightly constricted at orifice, on the outside with appressed hairs on throat below lower lip, internally mostly glabrous except for several erect and some glandular hairs at level of the lowest stamens, with a bright yellow spot on lower throat; upper lip roundish to transversely oblong, ca. 1 \times 1–1.5 mm wide, lavender; lower lip 3-lobed, ca. 2 \times 1.2–2 mm, central lobe transversely kidney-shaped to oblong, 1 \times 1.7 mm, white to lavender, lateral lobes roundish, \pm 1 mm wide, white to pale lavender; **stamens** 4, all fertile, pairs fused at 2 levels, 2 stamens arising at middle of corolla tube and 2 stamens arising on upper corolla tube, subsessile, included; filaments $<$ length of anthers; anthers basifixed, dithecal, ca. 0.3 mm long, light yellow, sacs oblique, longitudinally dehiscent; pollen light yellow; **pistil** 1, bottle-shaped, \pm 1.2 mm long, pale green, glabrous; ovary

superior, ovoid, ca. 0.5 mm long, not lobed, \pm translucent, yellow green, or pale green, 2-chambered, each chamber with 1 ovule; style \pm 2-lobed; stigmas capitate, light green.

Fruit: schizocarp, of 2 1-seeded nutlets (mericarps), < persistent calyx; mericarps ovoid to obovoid somewhat compressed front-to-back (\perp suture), $1.6\text{--}2 \times 1.1\text{--}1.3 \times 0.8\text{--}0.9$ mm, splitting \perp to wide face to yield mericarps, tannish, slightly rimmed on margins of flat inner face.

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