

Vascular Plants of Williamson County
Sagittaria platyphylla – DELTA ARROWHEAD [Alismataceae]

Sagittaria platyphylla (Engelm.) J. G. Smith, DELTA ARROWHEAD. Aquatic perennial herb, clonal, corm-bearing and stolon-producing, fibrous-rooted, rosetted, 1-stemmed at base, scapose with inflorescence at height of canopy, in range to 90 cm tall arising from corm; monoecious; shoots with basal rosette of upright emergent and sometimes submersed leaves, lacking floating leaves, glabrous, sap of axes milky when cut; corm covered by new leaf bases and many adventitious roots; stolon arising from axillary bud on corm, cylindrical but hemi-cylindrical near base, 3–4 mm diameter, white, internodes to 120 mm long, with membranous leaf sheath at each node, the sheath scarcely closed, to 10 mm long, becoming lobed by splitting; adventitious roots from corm nodes and penetrating surrounding leaf petioles and phyllodes, cylindrical, often > 100 mm long, 1–1.5 mm diameter, white with conspicuous lines \perp the root axis (septae), septae 1–2 per mm, with long, slender root hairs scattered along root axis. **Leaves:** helically alternate (submersed sometimes alternate distichous), simple and petiolate (emergent leaves) or as modified petiole resembling a blade (phyllode, submersed leaves), without stipules; of submersed leaf, phyllode (= flattened petiole) strap-shaped and flat, to 310 \times 25 mm, white only at base and with membranous wings to 100 mm from base, entire, acute at tip, parallel-veined; of emergent leaf, petiole mostly triangular and sharply keeled with wings, ascending to erect, in range > 300 – 620+ mm long, sheathing base white and relatively thin U-shaped, above base green and to 40 mm wide at wings gradually decreasing (wings) to ca 10 mm wide approaching blade, wings somewhat striped green and colorless with bridges between parallel veins irregularly \perp , triangular axis spongy with air canals in tissue (aerenchyma), blade ascending to suberect, in range \pm elliptic, < 105–195 \times < 40–65 mm, tapered at base, entire, acute at tip, parallel-veined with keeled midrib on lower surface nearly to tip, with to 11 principal veins and having ascending diagonal bridges. **Inflorescence:** raceme of unisexual flowers in whorls of 3, inflorescence terminal and 1 per rosette (scapose), whorls (3–)6–9, the lowest 1–3 whorls pistillate, upper whorls staminate, especially pistillate flower buds oriented obliquely outward, bracteate, glabrous; peduncle (scape) < leaves, at white base \pm hemi-cylindrical changing to cylindrical above, at first flowering < 400 mm long increasing some in fruit, to 7 mm diameter at base to 4.5 mm at raceme, green with horizontal whitish streaks, spongy (aerenchyma); raceme axis 3-sided on each internode; bractlet subtending each pedicel with 3 in whorl fused to form closed sheath 5–8 mm long, bractlet sheath 2–3 mm long and somewhat fleshy, bractlet lobes appressed to pedicels, deltate-triangular, 3.5–5.5 mm, parallel-veined with inconspicuous papillae along midvein or principal veins on lower (outer) surface, aging papery before anthesis of those flowers and persistent; pedicel ascending in bud and flower, arising from edge of rachis, of pistillate flowers cylindrical, at anthesis 7–9 mm long increasing to 3 \times and spreading to arching downward in fruit, of staminate flowers cylindrical but more slender, at anthesis 15–20 mm long and abscising at midpoint, light green to pale green. **Staminate flower:** radial, 16–23 mm across; with a glabrous, subspheroid receptacle (torus); **sepals** 3, slightly fused at base, strongly overlapped in bud, deeply cupped-ovate, ca. 8 \times 4–4.5 mm, ridged on lower (outer) surface and thereby striped green and colorless but veins not converging at acute tip, membranous on margins, in bud

minutely glandular-papillate along ridges, persistent on abscised flower; **petals** 3, short-clawed, obovate, in range 10–11 × 10–12 mm, white, claw to 0.5 mm long, limb delicate, becoming shriveled and abscising; **stamens** 14–20, helically alternate, free but filaments densely packed; filaments equal, compressed-ovoid and fleshy with narrow and thin tip (dilated), green, conspicuously short-hairy; anthers basifixed, conspicuously dithecal with an enlarged connective and sacs folded forward, 1–1.2 mm long, bright yellow with greenish connective having domed cells, longitudinally dehiscent; pollen bright yellow; **pistils** forming as several sterile pistillodes at top of receptacle, helically alternate; ovaries superior, somewhat rectangular flattened side-to-side, ca. 0.8 mm long, light green, 1-chambered but without ovule; style somewhat ascending and fingerlike, ca. 0.8 mm long, green to tip aging reddish. **Pistillate flower:** radial, 16–23 mm across; with a hemispheric receptacle (torus); **sepals** 3, slightly fused at base, strongly overlapped in bud, deeply cupped-ovate, ca. 8 × 4–4.5 mm, ridged on lower (outer) surface and thereby striped green and colorless but veins not converging at acute tip, membranous on margins, in bud minutely glandular-papillate along ridges, persistent and spreading beneath dense head of fruits; **petals** 3, short-clawed, obovate, in range 10–11 × 10–12 mm, white, claw to 0.5 mm long, limb delicate, becoming shriveled and abscising; **stamens** absent (lacking staminodes); **nectary** absent; **pistils** many (hundreds) and densely packed in an hemisphere display ca. 4.5 × 3 mm, helically alternate, each pistil inverted boot-shaped with ovary compressed side-to-side, ovary superior, somewhat rectangular in outline, ca. 0.6 × 0.4 mm, pale green, with thinner front and back margins (later forming wings), 1-chambered with 1 ovule; style horizontal, ± 0.2 mm long; stigma terminal, minute. **Fruits:** achenes in a many-fruited, hemispheric cluster; cluster in range 7.5–10 mm in diameter, in mass appearing green or light brown; achenes beaked (style), ± D-shaped, flattened, and 2-winged, 2–2.6 × 1.1–1.4 mm (including beak), truncate at base, wider, curved outer (abaxial) wing to 0.4 mm wide, straight inner (adaxial) wing narrower, wings tannish, entire, and lacking glands, fruit body broadly oblanceoloid compressed side-to-side, 1.2–1.8 × 0.5–0.7 mm, light golden brown, with abaxial edge and often adaxial edge on each face having a papery, winglike ridge; beak when immature mostly horizontal drying ascending 0.3–0.5 mm long. **Seed:** loose within achene visible through papery fruit wall, oval-obovoid slightly compressed side-to-side, ± 1 × 0.4 mm, contoured to ∩-shaped embryo, embryo green when abscised.

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