

Vascular Plants of Williamson County

Nuphar advena subsp. *advena* – SPATTERDOCK, YELLOW COW-LILY [Nymphaeaceae]

Nuphar advena (Aiton) W. T. Aiton subsp. *advena*, SPATTERDOCK, YELLOW COW-LILY. Aquatic perennial herb, colony-forming, rhizomatous, lacking stolons, fibrous-rooted, rosetted with floating to emergent blades; shoots with leaves arising directly from growing tip of submersed rhizome, with blade halves inrolled upward on upper surface, glabrous; rhizomes creeping, horizontal, and submersed, firmly rooted in substrate on lower side, to 65 mm wide and 50 mm thick, long and occasionally branched, outer surface with leaves green, having broad lens-shaped leaf scars and raised circular scars of pedicels on upper side, ground tissue firm and white (lacking aerenchyma); adventitious roots fleshy, to 370 × 6 mm, outer surface of old roots white with purplish, fleshy white. **Stems:** having no aerial stems. **Leaves:** helically alternate, simple with basal lobes, petiolate, without stipules; petiole cylindrical with hemicylindric base, base to 60 mm long, mostly white, often twisted to orient leaf toward surface of water, above base cylindrical, to 600 × 9–13 mm, green, tissue green and spongy with wide air canals (aerenchyma); blade arrow-shaped with 2 backward-pointing lobes, 120–250+ × (70–)110–190+ mm, length > width, basal lobes ca. 1/3 length of blade, wide and rounded, entire and sometimes wavy on margins, rounded at tip, pinnately veined with midrib strongly raised on lower surface, upper surface initially waxy (beading water) with high density of tiny stomates, lower surface dull. **Inflorescence:** solitary flower, axillary, on long pedicel emergent 10–80 mm, in bud like unopened like mushroom, lacking bracts, glabrous; pedicel spreading or ascending and mostly submersed, subcylindrical, 250–350+ × 5–9 mm, green, tissue with elongate, canal-like air chambers (aerenchyma) having star-shaped stone cells (astrosclereids). **Flower:** bisexual, radial, in range 28–45 mm across; **sepals** 6–7 in 2 whorls, dimorphic, short-reflexed at base and ascending and appressed to stamens, outer whorl of 3, overlapping, stiffly cupped-broadly ovate, 18–27 × 17–21 mm, green, entire, rounded at tip, inner whorl of sepals petal-like, obovate to fan-shaped or weakly 2-lobed and somewhat cupped, 20–38 × 18–32 mm, mostly bright yellow but green at base and often into center of limb, shallowly notched but notch often not at center; **petals** (staminodes) 24+, helically alternate, reflexed, rectangular to trapezoidal (wedge-shaped wider at top), 4.5–6 × 2.8–3.5 mm, bright yellow, firmly attached; **stamens** 100+ in 5–7 series, helically alternate, attached below ovary, mass of stamens forming thick ring ca. 23 × 9–10 mm (including petals), firmly attached, stamens not with distinct filament, 6–9 mm long increasing outer to inner, outer stamens reflexed and similar to petals and inner stamens strongly arching downward, yellow with whitish sacs on exposed (inner) surface, slanted truncate at top; anthers dithecal, the sacs 2.4–4.3 mm long (increasing with stamen length), ridged on outer surface, longitudinally dehiscent; pollen white; **pistil** 1, 8–8.5 mm long, yellow, upper portion exposed above mass of stamens and having a stigmatic disc; ovary superior, columnar and ridged, 10–11 mm diameter, with 11–14 chambers, each chamber with < 10 ovules; style absent; stigmatic disc platelike and horizontal, 13–18 × 2 mm, with wavy edge, center of disc with circular ring, having 11–14 stigmatic lines (lines = chambers) 4–5 mm long, papillate-hairy, aging purplish. **Fruit:** berrylike, mostly submersed, indehiscent, many-seeded, caudronlike, ca. 25 × 30 mm, with depressed top defined by short rim 22–23 mm across; outer whorl of sepals persistent and appressed, inner whorl of sepals often

damaged to absent, petals and mass of stamens persistent, the innermost stamens often with reddish tissues around sacs. **Seed:** lacking aril, ovoid, ca. 5×4 mm, \pm glossy yellow, with small hilum at top.

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