

## Vascular Plants of Williamson County

*Solidago ulmifolium* var. *microphylla* – SMOOTH ELMLEAF GOLDENROD [Asteraceae]

*Solidago ulmifolia* Mühlenb. var. *microphylla* A. Gray (syn. *S. delicatula*), SMOOTH ELMLEAF GOLDENROD. Perennial herb, with caudex (visible axillary buds), fibrous-rooted, often only 1-stemmed at base from each caudex, unbranched below canopy, ascending to suberect, in range 40–80 cm tall; shoots with basal leaves (absent at flowering) and cauline leaves, cauline leaves in range axes and foliage glabrous (occasionally short-hairy); caudex to 5 mm diameter, elongate and tough with exposed axillary buds; adventitious roots forming on caudex and numerous, long (e.g., 40 mm) and straight. **Stems:** subtly ridged some cylindric, to 3 mm diameter, with 1 vein descending from each leaf, commonly glabrous and lacking glandular hairs. **Leaves:** helically alternate, simple, at flowering all leaves sessile but appearing to have short, green-winged petiole, without stipules; blade  $\pm$  dimorphic, lanceolate to ovate (obovate), in range to 40–52  $\times$  14–20 mm (lower cauline leaves and longer on basal leaves) and along branches of canopy similar but 1/2 size, tapered at base (petiolelike sometimes with margins somewhat inrolled), serrate to subentire or entire on margins with minute, teethlike hairs along each serrate tooth (appearing doubly-serrate), acute (acuminate) at tip, pinnately veined having 1 prominent vein at base with midrib raised on lower surface thickened at base, commonly glabrous (short hairs if stems also pubescent), dots inconspicuous. **Inflorescence:** in slender, spreading to arching (strongly secund) paniclelike arrays, each terminal on a leafy shoot at the top of the open canopy, several arrays per canopy, to 150 mm long, nodes 20+, forming relatively short, condensed primary branches spaced 3–5 mm apart (array short-interrupted to midpoint), heads 200+, each primary branch to at least midpoint of panicle with several–15 heads, on primary branch somewhat umbel-like, bracteate, often glabrous; bract subtending primary branch narrowly oblanceolate, to 5  $\times$  1 mm decreasing upward and becoming linear, green, veiny, entire, often glabrous (with short hairs on pubescent individuals); bract subtending peduncle of head awl-shaped to 1.2 mm long; axis of panicle and primary branches with helically alternate, overlapping, scalelike bracts; peduncle short, with scalelike bracts grading to involucre; **involucre**  $\pm$  narrowly bell-shaped, (3.5)–4(–5)  $\times$  1.2 mm, of ca. 25 unequal phyllaries in several series, narrow oblong and < 1 mm long (outer phyllaries) increasing to elliptic-linear and to 4  $\times$  0.7 mm (the innermost phyllaries), greenish at base to yellowish above, obtuse and somewhat cupped at tip, 1-veined, phyllaries having thickened base and often inconspicuously ciliate above midpoint or minutely jagged on margins, lacking glandular hairs; receptacle narrow. **Ray flower:** bilateral, ca. 1 mm across; **calyx (pappus)** of ca. 30 capillary bristles in 2 tight series, in range 1.2–1.5 mm long, white, spreading in fruit and persistent; **corolla** minutely 3-toothed, lacking hairs; tube cylindric, ca. 1.3  $\times$  0.5 mm, colorless tissue with 5 faint, yellow veins; limb roundish in outline, 1 mm long, yellow; **stamens** absent; **pistil** 1,  $\pm$  3 mm long; ovary inferior, top-shaped, ca. 0.7  $\times$  0.3 mm, whitish, with minute hairs, 1-chambered with 1 ovule; style exserted, 2–2.3 mm long, yellow-orange, 2-branched close to stigmatic tips. **Disc flower:** radial, ca. 2 mm across (corolla); **calyx (pappus)** of ca. 30 capillary bristles in 2 tight series, in range 1.5–2.5 mm long, white, in bud low portion often crumpled, spreading in fruit and persistent; **corolla** 5-lobed,  $\pm$  2 mm long, lacking hairs; tube somewhat dilated to top, 0.4 mm long, whitish; throat 0.8 mm long, yellow; lobes

triangular, 0.8 mm long, yellow; **stamens** 5, attached at top of corolla tube; filaments short, yellow; anthers fused into cylinder surrounding style, basifixed, dithecal, 1.4–1.6 mm long with triangular appendages, light yellow-orange, longitudinally dehiscent; pollen light yellow-orange (golden); **pistil** 1, tip scarcely exerted; ovary inferior, top-shaped, ca. 0.7 × 0.3 mm, whitish, with minute hairs, 1-chambered with 1 ovule; style 2-branched, lower portion often purple-red, upper portion yellowish, the stigmatic branches 0.35–0.4 mm long. **Fruits:** cypselae (achenes) narrowly obconic, 1.5–2 mm long, with 6–9 ribs, short-strigose along ribs; pappus of ca. 30 spreading, whitish capillary bristles 1.5–2 mm long.

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