

## Vascular Plants of Williamson County

### *Helianthus grosseserratus* – SAWTOOTH SUNFLOWER [Asteraceae]

*Helianthus grosseserratus* M. Martens, SAWTOOTH SUNFLOWER. Perennial herb, robust, clonal, rhizomatous, thick fibrous-rooted from shallow rhizome, “individual” several-stemmed from each base and often many-stemmed per clump arising via widely spreading rhizomes, principal stems unbranched, ascending to leaning (sagging), spreading or often arching, in range 120–350 cm tall; shoots with basal and cauline leaves, lower stem leafless at flowering, only foliage scabrous (especially upper surfaces), short-hirsute and gland-dotted with sessile to subsessile glandular hairs having colorless heads, strongly aromatic-odorous when handled or crushed, axes mostly lacking hairs (glabrate); rhizomes several from each individual at time of flowers, horizontal (stolonlike) several cm belowground, cylindric, 3–4 mm diameter and white (fleshy) aging thicker and woody with periderm, internodes often long (to 85 mm long), scale opposite and fused across node or sometimes alternate, triangular and acute to obtuse 5–6 × 4–4.5 mm (appressed) or acute-acuminate to 15 mm long (ascending), white; adventitious roots on lower side of rhizomes, relatively few, thick and woody (taprootlike) to 10 mm diameter. **Stems:** inconspicuously ridged, at base to 15 mm diameter, with 5 slightly raised ridges descending from each leaf, tough soon woody, green aging with periderm and lower stem having furrowed, brown bark. **Leaves:** mostly opposite decussate but helically alternate in flowering portion, simple and mostly conspicuously serrate, petiolate with opposite leaves fused as ledges across node, without stipules; petiole ± hemicylindric, in range (11–)24–48 mm long, indistinct from blade, pale green, sparsely short-hairy, the hairs with enlarged bases, of the uppermost canopy puberulent; blade ovate or oblong to lanceolate, in range (48–)90–240 × (15–)20–90 mm, dull, tapered at base, coarsely serrate (subentire) on margins with hard tips on teeth, acuminate at tip, pinnately veined with principal veins slightly sunken on upper surface and raised on lower surface, ± appearing 3-veined several mm above leaf base, short-hirsute and gland-dotted with scattered sessile to subsessile glandular hairs, nonglandular hairs mostly pointing toward margins. **Inflorescence:** heads, in a leafy, terminal array in canopy having 1–several heads, with flowering branches developing from downward, head radiate, mostly 50–60 mm across, in range of 12–15 neuter ray flowers and 200+ bisexual disc flowers, bracteate, short-hirsute on exposed green surfaces and gland-dotted; peduncle roughly angled, with short, nonglandular hairs upward-pointing, < 10–100 mm long with several, alternate diminutive leaflike bracts (= future heads), bract subtending peduncle of terminal head 0–1, lanceolate, to 12 mm long, lacking bracts at top (no calyculus); **involucre** ± hemispheroid initially with arching tips later spreading to recurved, 13–25 mm across (ca. 30 mm across with arching phyllaries), phyllaries 25–30, acuminate-lanceolate, 10.5–15 × 2–3 mm, outer phyllaries ± 13, inner phyllaris ± 13 subtending ray flowers and the innermost phyllaries subtending disc flowers and transitional to paleae, phyllaries densely short-ciliate on margins, gland-dotted below midpoint on upper surface and short-hairy on acuminate tip; receptacle domelike, with bractlet (palea) subtending and cupping each disc flower, bractlet folded (edge-on to ovary) and with narrowly winged keel, obovate to rectangular (flattened), in range (5–)6–7.5 mm long, aging scarious, mostly white and membranous striped with parallel veins, keel short-ciliate, upper portion acute or with a pair of low lateral shoulders, mostly green, short-

ciliate on margins, sparsely short-hairy on outer surface above midpoint. **Ray flower:** bilateral, to 6–8 mm across; **calyx (pappus)** mostly of 3 unequal scales at top of each ovary edge, scales scarious, lanceolate to ovate and cupped (not keeled), 1.2–3 mm long on each flower, short-jagged on margins; **corolla** minutely notched (unnotched); tube flattened front-to-back and solid, 0.8–1.2 mm long, translucent (yellowish), with sparse short hairs; limb elliptic to narrowly lanceolate, in range 22–34 × 6–8 mm, bright yellow, acute at tip with sinus very short, having ca. 14 parallel veins with principal veins somewhat sunken on upper surface and raised on lower surface, upper surface glabrous, lower surface short-hairy especially near tube and along veins; **stamens** absent; **pistil** 1, sterile; ovary inferior, conspicuously 3-sided with flat outer side, 3 × 1 mm, greenish, smooth, glabrous, lacking chamber; style absent. **Disc flower:** radial, 2–3 mm across; **calyx (pappus)** to 2 subequal, opposite scales, scales triangular, 2–3 mm long, scarious, keeled, short-jagged on margins; **corolla** 5–6-lobed, ca. 6 mm long; tube cylindrical (vertebralike), 1 × 0.7 mm, white, glossy and whitish, glabrous; throat ca. 3.5 × 1 mm, in range lower portion bulbous and thick-walled, above with principal vein to each sinus and each lobe (lobe 3-veined), colorless tissue with orangish yellow veins, short-hairy; lobes widely spreading, triangular, ca. 1.5 × 0.8 mm, golden yellow, short-hairy on lower surface; **stamens** 5–6, attached to top of corolla tube; filaments flattened, ca. 2.2 mm long, white and 1-veined; anthers partially exerted, fused into cylinder surrounding style, ca. 3 mm long + appendages at top, anther sacs purple to purplish brown, the appendages, trowel-shaped cupped, ca. 0.5 mm long, yellow, gland-dotted on outer surface, longitudinally dehiscent; pollen yellow-orange; **pistil** 1; ovary inferior, top-shaped compressed side-to-side (inversely pyramidal), 2.2–3 × 1.3 × 0.5–0.6 mm, white purple top rim purple, asymmetrically notched at base, smooth, glabrous, 1-chambered with 1 ovule; nectary disc surrounding base of style, ca. 0.15 mm long, white; style 2-branched, 4–4.5 mm long below fork, white at base to orange-yellow, the branches stigmatic, widely spreading to arched, 2–2.4 mm long, orangish yellow, papillate on outer (lower) side and margins. **Fruits:** cypselae (achenes) of only disc flowers, somewhat top-shaped compressed side-to-side (inversely pyramidal), in range (2.6–)3–3.8 × 1.4–1.6 mm, grayish black (not mottled) initially glossy, base asymmetrically notched; pappus scales 2, opposite (above fruit edges), scarious, triangular, keeled, folded, in range mostly 2–3 mm long, somewhat jagged on margins, lacking awns, easily detached on dry fruit.

A. C. Gibson