

## Vascular Plants of Williamson County

*Silphium radula* – TALL ROSINWEED, ROUGHLEAF ROSINWEED [Asteraceae]

*Silphium radula* Nutt., TALL ROSINWEED, ROUGHLEAF ROSINWEED. Perennial herb, several-stemmed at base, principal branches ascending spreading) often unbranched below flowering canopy, in range to 180 cm tall; monoecious; shoots with cauline leaves, foliage conspicuously scabrous, short-hispid with persistent enlarged bases, having resin ducts, foliage aromatic when crushed. **Stems:** cylindric, to 9 mm diameter, with persistent ledgelike leaf bases, axis woody for most of length. **Leaves:** opposite (subopposite) decussate, simple, sessile, and clasping, without stipules; blade ovate,  $< 65\text{--}150 \times < 30\text{--}90$  mm,  $\pm$  cordate at base, appearing entire but with widely spaced, blunt, callouslike teeth on margins, acute at tip, pinnately veined with even minor veins slightly sunken on upper surface and principal veins raised on lower surface. **Inflorescence:** heads, in terminal, condensed, several-headed cymelike arrays, heads on stiff, short, leafy peduncle, head radiate, 50–75 mm across, in range of 14–17 pistillate ray flowers and many functionally staminate disc flowers, bracteate; peduncle stemlike,  $< 1$  mm long, at top of peduncle lacking bracts (calyculus) below involucre; **involucre** hemispheroid, phyllaries surrounding flowers ca. 13 in 3 series grading to bractlets (paleae) subtending ray flowers of inner series (other authors treat phyllaries and bractlets as involucre), exposed phyllaries ovate,  $15\text{--}22 \times 13\text{--}16$  mm, green, truncate at base, entire and wavy on margins, acute to obtuse at tip, with 9 or 11 parallel veins at base and thicker below midblade, inner phyllaries obovate, white and glabrous to midpoint, green and scabrous above midpoint, the hairs with enlarged bases; bractlet (palea) subtending each ray flower of inner series flattish oblanceolate,  $10\text{--}12 \times 3.5\text{--}4$  mm, glossy white and glabrous to midpoint, green and scabrous above midpoint, acute at tip, inner surface glossy and glabrous; bractlet subtending disc flower, cupped-oblanceolate, ca.  $11 \times 1.5$  mm, white and glabrous to midpoint, green and short-hairy above midpoint. **Ray flower:** bilateral, 7.7–11.5 mm across; **calyx (pappus)** absent; **corolla** short 2-toothed; tube  $\pm$  cylindric somewhat compressed front-to-back, 1.5–2 mm long, white, glabrous; limb  $\pm$  elliptic to obovate-elliptic,  $17\text{--}32 \times 7.7\text{--}11.5$  mm, bright yellow, parallel-veined to 2 principal veins to teeth at tip and ca. 10 fine minor veins, 2 principal veins sunken on upper surface and raised on lower surface, lower surface with soft short hairs below midpoint; **stamens** 5, vestigial and sterile (lacking anthers or having aborted anthers), attached to top of corolla tube, ca. 1 mm long, yellowish; **pistil** 1; ovary shield-shaped and winged, at top wings with a pair of acute top separated by a broad notch, ca.  $9 \times 7$  mm, greenish white, attached to phyllary or bractlet at base, convex on outer surface and concave on inner surface, short-hairy especially on inner surface, 1-chambered with 1 ovule; style exerted, ca. 6 mm long, yellowish at base mostly yellow, long 2-branched, the stigmatic branches 4.5–5 mm long. **Disc flower:** radial, 1.5 mm across, ca. 11 mm long; **calyx (pappus)** absent; **corolla** 5-lobed, ca. 7.5 mm long; tube absent (filaments attached at base of corolla); throat cylindrical-narrowly funnel-formed, ca.  $6.5 \times 1.3$  mm, white at base to yellowish above, glabrous or nearly so; lobes triangular, ca.  $1.1 \times 0.8$  mm, thick and fleshy, orange-yellow (golden yellow), papillate on upper surface; **stamens** 5, attached to base of corolla; filaments ca. 3 mm long, pale yellow at base to orange-yellow at top; anthers fused into cylinder around style, 4–4.5 mm long, purplish brown, longitudinally dehiscent; pollen orange-yellow;

**pistil** 1, included, with sterile ovary; ovary inferior, cylindric somewhat compressed, ca. 4 × 0.6–0.65 mm, white, at top short-hairy, increasing 2× and persistent on head; **nectary disc** surrounding base of style; style ca. 10 mm long, orange-yellow but pale yellowish at base, unbranched, glabrous at base but mostly conspicuously papillate-hairy. **Fruits:** cypselae (achenes) of only ray flowers, 2-winged obovate shield-shaped, strongly flattened, broadly notched between wings, 9–11 × 7.5–9 mm, seed chamber 7–8 × 5.5–6.5 mm, gray-brown, wing with 2 acute tip to 4 mm from seed chamber, wings light brown, outer surface convex, glabrescent or with short hairs above midpoint, minutely ciliate on margins mostly above midpoint, inner surface concave short-hairy, notch short-hairy.

A. C. Gibson