

## Vascular Plants of Williamson County

*Arnoglossum plantagineum* – GROOVESTEM INDIAN PLANTAIN, PRAIRIE INDIAN PLANTAIN  
[Asteraceae]

*Arnoglossum plantagineum* Raf., GROOVESTEM INDIAN PLANTAIN, PRAIRIE INDIAN PLANTAIN. Perennial herb, with upright, caudexlike structure ('weakly rhizomatous'), fibrous-rooted, conspicuously rosetted at flowering, 1-stemmed at base, unbranched below flowering canopy, erect, in range 40–110 cm tall; shoot with several–many basal leaves and to 15 cauline leaves, foliage resembling common plantain (*Plantago major*), glabrous; caudex to 15 mm diameter, with somewhat fleshy adventitious roots spreading and arising at bases of basal leaves. **Stem:** polygonal in  $\times$ -section with rounded, low angles, 10+ mm diameter (tall plants), with several veins descending from each cauline leaf, inconspicuously zigzagged, internodes to 100 mm long, tough, green with conspicuous crimson to rose stripes; pith aging with very narrowly hollow (schizogenous). **Leaves:** helically alternate, simple, petiolate, without stipules; petiole flared at base, crescent-shaped in  $\times$ -section, to 190 mm long, indistinct from tapered blade and decreasing upward through cauline series, tough, with many closely spaced parallel veins raised on lower side, edges often red-purple; blade of basal leaves in range ovate,  $< 150\text{--}225 \times < 70\text{--}140$  mm,  $>$  petiole, tapered at base, appearing entire but often with inconspicuous, low calluslike bumps on margins (incipient teeth), the margins often red-purple, obtuse to rounded at tip, palmately veined mostly having 5 or more principal veins at base and to 11 principal veins at the widest point of the blade, principal veins converging near leaf tip sunken on upper surface and raised to conspicuously raised on lower surface, lacking all types of hairs; blades of cauline leaves similar but decreasing upward, ovate to elliptic, with ill-defined low teeth above the widest level of the blade. **Inflorescence:** heads, 125+ in a terminal, broad, flat-topped cymelike array (corymbiform), having a terminal cluster and a helically alternate series of spreading primary lateral branches with heads erect, array 100–300 mm across, the lowest, longest branch to 140 mm long decreasing upward, each branch with several branchlets having shorter internodes and a terminal clusters of to 7 heads, bracteate, glabrous; bract subtending the lowest lateral branch leaflike, = short-petiolate cauline leaf with a cupped-elliptic blade to  $15 \times 7$  mm decreasing upward, palmated veined at base, petiole flared at base to 5 mm long decreasing upward; primary branch axis cylindric, to 3 mm diameter, tough, green but often with purple-rose veins at base, of branchlets 5-ridged, white or with greenish furrows; bract subtending principal branchlet narrowly triangular to awl-shaped, to 7.5 mm long decreasing upward; bract subtending peduncle awl-shaped, 1.5–2 mm long with enlarged base; peduncle to 5-ridged, 4–9 mm long increasing  $2\times$  in fruit, white, sometimes with 1 or more awl-shaped bracts along axis and 1–2 bracts to 2 mm long at top subtending involucre (not treated by authors as a calyculus); **involucre** of 5 equal phyllaries in 1 series, phyllaries erect, at anthesis and early fruit columnar  $10\text{--}11\text{--}(12) \times 5\text{--}6$  mm and star-shaped in  $\times$ -section, later enlarging at base with development of fruits, each phyllary folded outward with a finlike edge (keel or "winged") and phyllaries interlocked at anthesis, in fruit phyllaries separating and diverging, faces ca. 1.5 mm wide greenish with white at angles, phyllaries at anthesis with wide, winglike membranous margins aging papery, the lowest phyllary lacking membranous margins, the next 2 phyllaries each with 1 membranous margin, the inner phyllaries each with 2 membranous margins, glabrous; receptacle  $\pm$  flat shallowly pitted beneath each ovary with

a strong vascular strand, lacking bracts (paleae), glabrous. **Disc flower:** bisexual, radial,  $\pm$  4 mm across; faintly scented; **calyx (pappus)** of 100+ straight bristles in ca. 4 series, 6–8.5 mm long, with minute, upward-pointing barbs (antrorse), persistent and ascending in fruit; **corolla** 5-lobed; tube cylindric, ca.  $6 \times 0.6$  mm, light green, slightly expanded around nectary disc and enlarged base of style; throat barrel-shaped, ca.  $1 \times 1$  mm, appearing as a rose-red band; lobes exerted, strap-shaped becoming coiled to recurved, ca.  $3.5 \times 0.65$ – $0.75$  mm, cream-colored or blushed with pink at base; **stamens** 5, attached at top of corolla tube; filaments ca. 2 mm long, colorless; anthers fused into cylinder surrounding style, fully exerted, basifixed, dithecal, 2.7–3 mm long including reddish, triangular appendages at top, orange-yellow aging with crimson stripes, longitudinally dehiscent; pollen orange-yellow; **pistil** 1; ovary inferior,  $\pm$  wedge-shaped, at anthesis ca.  $1.7 \times 1.2$  mm and pale green + green rim at top (0.2 mm), minutely beaded with faint veins, 1-chambered with 1 ovule; **nectary disc** surrounding base of style, ca. 0.2 mm long, greenish, nectar not observed; style  $\pm$  9 mm long, light green to midpoint and whitish above midpoint, 2-branched, the stigmatic branches  $\pm$  1.7 mm long, at anthesis appressed, rounded and conspicuously papillate-hairy (penicillate) at tip, aging exposed, spreading and recurved by splitting fused cylinder of anthers. **Fruit:** cypselae (achenes), truncate-oblong, ca.  $4 \times 1.5$  mm, dark brown, with ca. 10 ribs, surface minutely beaded.

A. C. Gibson