

Vascular Plants of Williamson County

Plantago helleri – CEDAR PLANTAIN, HELLER PLANTAIN [Plantaginaceae]

Plantago helleri Small, CEDAR PLANTAIN, HELLER PLANTAIN. Annual, taprooted, rosetted, several-stemmed at base, acaulous, with 1–3(–5) erect axillary inflorescences (each from a middle rosette leaf), in range 8–15(–20) cm tall; shoots = basal rosettes with ascending, grasslike leaves, densely soft-hairy, the villous hairs fine, to 6 mm long, white, with swollen bases. **Stems:** = scapelike peduncles, leaf-bearing portion < 20 mm long. **Leaves:** helically alternate, simple, to 110 mm long, petiolate, without stipules; petiole < 20 mm long, winged and often indistinct from blade, on narrow portion having upturned wings 1 mm wide, channeled, to 3.5 mm wide and half-sheathing stem at base, with exceptionally long hairs in channel; blade oblanceolate-linear to linear, 7–100 × 1–5 mm, strongly folded upward along midrib below midblade with margins nearly touching, long-tapered at base, entire, blunt-acuminate at tip, parallel-veined and typically 3-veined with veins visible on lower surface, villous aging ± glabrescent on exposed surfaces. **Inflorescence:** spike, flowering when < 30 mm from ground and in mature fruit sometimes elevated above leaves, cylindric, in range to 33 × 7–10 mm, with (2–)10–30+ flowers, flowers subsessile, densely crowded, and in whorls of 3 (rarely opposite decussate on depauperate specimen), with 6(4) vertical stacks of flowers; peduncle cylindric (when fresh), to 130 mm long, 1 mm diameter, tough and wiry, green, hollow, densely soft-hairy with mostly radiating hairs; spike rachis completely hidden by flowers, 3-sided and sharply 3-angled, long-hairy; bractlet subtending flower ascending, having wide wings at base and a linear awl-shaped upper portion, at anthesis 4–5 mm long increasing to 2× and persistent in fruit, the membranous, winged base to 2 mm long, green tissue long-villous; pedicel < 0.3 mm long. **Flower:** bisexual, ± radial, at pollination < 2 mm across (pollinated before flower opens) increasing to 5–6 mm across with spreading corolla lobes during fruit development (3 corolla lobes exposed and 1 somewhat hidden); **sepals** 4, appressed, dimorphic, in 2 pairs with 2 opposite inner sepals clasping 2 sepals positioned on outer side of flower; inner sepals cupped-ovate to cupped-broadly elliptic, 4.2–4.5 × 2.5 mm, ± keeled, mostly membranous aging scarious having thick, green central axis, green axis villous on lower (outer) surface; outer sepals asymmetric with membranous margins not the same width, overlapping on adjacent margin, narrowly obovate, 4 × 1.3–1.8 mm (inner sepals not the same width), not keeled, narrow margin long-ciliate, persistent around fruit; **corolla** 4-lobed, glabrous; tube somewhat 4-sided compressed front-to-back, 2 × 1.3 mm, 1 mm diameter at base, translucent but expanded during fruit development and then forming red band approaching lobes; lobes opposite decussate, outer 2 lobes on sides overlapping inner 2 lobes, at pollination ascending and overlapped, ovate, ca. 3.3 × 2.5–3 mm (outer lobes) and ca. 2.8 × 2.3–2.8 mm (inner lobes), membranous becoming scarious, lobes not lobed (auriculate) at base, during fruit development spreading to slightly reflexed and becoming concave on surface of spike, aging tinged red-orange in central portion with dark red next to tube so exhibiting a conspicuous, red-edge square at base of lobes, broadly 3-veined, glabrous, persistent; **stamens** 4, alternate with corolla lobes, fused to corolla tube; filaments ± 1.2 mm long, pale pink; anthers dehiscent in bud, dorsifixed, dithecal, ca. 0.45 mm long, reddish and light yellow, longitudinally dehiscent; pollen pale pink; **pistil** 1, at anthesis 2 mm long, subsessile; ovary superior, compressed front-to-back, ± 0.8 mm long,

green, glabrous, 2-chambered, each chamber with 1 ovule; style ca. 1 mm long, greenish white and 4-sided at base, mostly stigmatic; stigmatic region reddish, puberulent with ascending short hairs (opposite septum). **Fruit:** capsule, dehiscent around fruit 1.5 mm above base (circumscissile), 2-seeded, ovoid, 4–4.4 mm long, above line of dehiscence glossy green and smooth drying straw-colored; upper portion width > thickness, lower portion of fruit persistent, shorter, and thinner; corolla with lower and 2 lateral lobes spreading and somewhat cupped, and upper corolla lobe somewhat hidden by being folded into a lower and an upper half and tucked behind flower. **Seed:** hemi-ovoid but with a deep, concave depression on inner face, $2.7\text{--}3.7 \times 1.5 \times 1$ mm and fitting tightly within capsule (separated by papery septum), brown, finely textured (shallowly pitted) with minute cells in long files, seed coat sometimes with faint indentation below midpoint opposite line of capsule dehiscence; depression on inner face elliptic and ca. 0.8 mm wide, wall 0.25–0.3 mm thick; mucilaginous when wet.

A. C. Gibson