

Plantago L. PLANTAIN

Plantago erecta E. Morris, CALIFORNIA PLANTAIN. Annual, taprooted, rosetted, 1(–several)-stemmed at base, acaulous, scapose, erect, 4–16(–20) cm tall; shoots with only ascending, slender basal leaves, short-strigose or sparsely soft-pubescent to villous with fine spreading to ascending hairs. **Stems:** = scapelike peduncle, leaf-bearing segment < 10 mm long. **Leaves:** helically alternate, simple, petiolate and slightly sheathing (without obvious distinction between petiole and blade), without stipules; blade linear to linear-oblongate, 20–90 × < 2 mm, tapered at base, ± entire (remotely short-dentate), rounded at tip, parallel-veined but showing no venation, sparsely pubescent. **Inflorescence:** spike, terminal on scapelike peduncle axillary to a basal leaf, 5–15 × 5–8.5 mm, with 1–8(–many) pairs of flowers in dense, opposite decussate arrangement, bracteate, soft-pubescent; peduncle cylindric, to 0.7 mm diameter, tough and wiry, green turning red, short-strigose; bractlet subtending flower ovate and keel-like, 2 mm long, green or purplish with scarious margins, rounded at tip, not concealing flower. **Flower:** bisexual, radial, 4 mm long, protogynous or never opening (cleistogamous); **sepals** 4, cupped-obovate, 2.5–3.3 × 1.3–1.9 mm, scarious with herbaceous, green midstripe commonly purplish at tip (margin), finely villous on outer surface of midstripe or even scarious parts, persistent around fruit; **corolla** 4-lobed, scarious and semi-transparent, mostly whitish tan; tube mostly conforming to shape of ovary, constricted and extending ca. 0.5 mm above ovary into a narrow, 4-sided orifice, with glandlike swellings in orifice below bases of lobes, the swellings wedge-shaped, purplish, and pointing down the tube; lobes initially spreading or erect (cleistogamous flowers), ovate, ca. 2 mm long, becoming strongly reflexed and adherent to ovary wall, persistent; **stamens** 4, alternate with corolla lobes, fused to corolla tube ca. 0.5 mm below orifice; filaments of two lengths, 1.5–2.5 mm long (typical flowers) or short (in cleistogamous flowers), colorless; anthers dorsifixed, dithecal, arrow-shaped, 0.7–1 mm long (< 0.3 mm long in cleistogamous flowers), orangish, longitudinally dehiscent; pollen colorless; **pistil** 1; ovary superior, somewhat compressed conic, 2-chambered, each chamber with 1 ovule; style exerted before stamens, 1–2 mm long; stigma hairy except at base. **Fruit:** capsule, dehiscent around fruit slightly below midpoint (circumscissile), 2-seeded, ovoid, 3.5–4 mm long, pale brown; lower portion of fruit persistent. **Seed:** hemi-ellipsoid (1.9–)2.1–3 × 1–1.5 mm, dull brown to dark brown, finely netlike on convex face, concave on inner face, the concavity whitish and bordered by a wide rim; mucilaginous when wet. Late January–mid-May.

Native. Annual commonly found growing on open ground between shrubs or openings in grassland throughout the range. *Plantago erecta* forms patchy local populations, each with many individuals, probably because the seeds are dropped around the parent plant creating a local seed bank. In dry years, or on thin soils, the individuals are small, and become among the shortest annuals in range. This species has strongly protogynous flowers, first producing long-exserted stigmatic style branches, and on a different day producing fully exerted anthers. These are wind-pollinated flowers but are self-compatible, and also some flowers are cleistogamous, so that there is essentially 100% seed set on each spike.

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