

Portion of PLANTAGINACEAE, the Plantain Family: *Littorella* and *Plantago*

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Portion of PLANTAGINACEAE, the Plantain Family: *Littorella* and *Plantago*

1. LITTORELLA P. J. Bergius (coastal) Shoreweed. Herbs, perennial, stoloniferous; stems erect or creeping, glabrous; lvs basal, alternate, fleshy; petiole absent; blade margins entire; infls lateral, spikes axillary; bracts present; pedicels present; bracteoles absent; fls unisexual; sep 4, nearly distinct, calyx radially symmetric, cuplike, lobes oblong; corolla semitransparent, radially symmetric, rotate, spurs absent, lobes 4; stamens 3 or 4, distinct, equal, filaments glabrous; ovary 1-locular, placentation basal, stigma elongate; nutlets symmetric; seeds 1, black or brown, oblong, wings absent. $x=6$. 3, N. Am., S. Am., Eur.

Molecular evidence supports a sister-group relationship between *Littorella* and *Plantago*. Though some authors unite the 2 genera, morphologically they are distinctive, with *Littorella* possessing traits unknown in *Plantago* s.s., such as stoloniferous habit and unisexual fls.

1. *Littorella americana* Fernald (American) American S. Pls fibrous-rooted; lvs dark green or green when dry, usu arcuate, linear, or subulate, $10\text{--}40 \times 1\text{--}2$ mm, glabrous; spikes: staminate fls 1, peduncles 5–30 mm, glabrous; pistillate fls 2–5, sessile, proximal to staminate fls, at base of pl; bracts rounded; fls: sep 2.5–3 mm; corolla lobes erect; stamen connective ≤ 1 mm; nutlets 2.5–3 mm; seeds 2–3 mm. $2n=12$. Shorelines of lakes, ponds, and slow-moving streams; NS to ON, s. to NY and MI. Summer. Rare; secure, concern: MI, NY, WI.

2. PLANTAGO L. (historical L name of pl, from “sole of foot”) Plantain. Herbs, annual or perennial, rarely subshrubs or trees; caudex usu present when perennial; stems erect, glabrous or hairy; lvs usu basal, rarely cauline, usu alternate, rarely opposite, fleshy to leathery or not; petiole absent or present; blade margins entire or variously toothed. Infls lateral spikes; bracts present; pedicels absent or present; bracteoles absent; fls bisexual; sep 3 or 4, nearly distinct (abaxially connate in *P. lanceolata*), calyx usu radially symmetric, rarely bilaterally symmetric, cuplike, lobes oblong; petals 4, corolla semitransparent, radially symmetric or bilaterally symmetric with smaller lateral lobes, spurs 0, abaxial lobe 1, adaxial lobe 1; stamens 2 or 4, distinct, equal, filaments glabrous, staminode 0; ovary 2-locular, placentation centr; stigma elongate; capsules symmetric, dehiscence circumscissile; seeds (1–)2–35, black or brown, oblong, not winged. 225, cosmop.

- 1 Lvs cauline, opposite.
 - 2 Infls and peduncles usu glandular-hairy above; spikes with all bracts similar 2. *P. afra*
 - 2 Infls and peduncles not glandular-hairy spikes with proximal bracts strongly differing from distal bracts..... 1. *P. arenaria*
- 1 Lvs basal, alternate.
 - 3 Lf margins mostly 1–2-pinnatifid; scapes usu decumbent, sometimes erect; corolla tubes pubescent 5. *P. coronopus*
 - 3 Lf margins entire, toothed, or with lobed teeth; scapes erect or ascending; corolla tubes usu glabrous, rarely pubescent.
 - 4 Pls annual; lvs linear, narrowly elliptic, or almost filiform; roots slender.
 - 5 Seeds 3–25(–30); corollas radially symmetric, lobes 0.5–1 mm; lvs glabrous or inconspicuously hairy.
 - 6 Seeds 10–25(–30), 0.5–0.8 mm 8. *P. heterophylla*
 - 6 Seeds (3–)4–9(–12), 0.8–2.5 mm.
 - 7 Corolla lobes usu spreading or reflexed, not forming beak; seeds (3–)4–9(–12), 1.5–2.5 mm..... 6. *P. elongata*
 - 7 Corolla lobes erect, forming beak; seeds 4, 0.8–1.3 mm..... 14. *P. pusilla*
 - 5 Seeds 2; corollas bilaterally symmetric or radially symmetric, lobes 1.4–3.0 mm; lvs often conspicuously hairy.
 - 8 Adaxial surface of lf blade usu densely hairy, teeth (if present) inconspicuous; stems 0–15 mm; lf blades green or dark green when dry 13. *P. patagonica*
 - 8 Adaxial surface of lf blades glabrous or sparsely villous, lf margins entire, rarely with inconspicuous teeth; stems 10–40 mm; lf blades usu dark green when dry.
 - 9 Bracts 2–12× length of sep; adaxial corolla lobe 1.4–2.3 mm, lateral lobes symmetric; flowering spring–fall 3. *P. aristata*
 - 9 Bracts 0.4–0.8× length of sep; adaxial corolla lobe 2.4–3 mm, lateral lobes asymmetric; flowering in summer 18. *P. wrightiana*
- 4 Pls perennial, rarely annual; lvs usu not linear or narrowly elliptic; roots thick or slender.
 - 10 Pls annual or perennial; taprooted; corollas usu not open, lobes erect, usu forming beak.
 - 11 Sep 2.7–3.6 mm, apices acuminate; bracts 2.5–3.2 mm, narrowly triangular or triangular; seeds dark red 15. *P. rhodosperma*
 - 11 Sep 1.5–2.4 mm, apices obtuse; bracts 1.6–2.4 mm, narrowly ovate or ovate; seeds brown or yellowish-brown 17. *P. virginica*
 - 10 Pls mostly perennial, taprooted or fibrous-rooted, or with caudex; corollas open, lobes spreading or reflexed, not forming beak.
 - 12 Lf blade linear to lanceolate, veins inconspicuous; corolla tubes hairy... 11. *P. maritima*
 - 12 Lvs lanceolate, oblanceolate, ovate, elliptic, or cordate-ovate, veins conspicuous; corolla tubes glabrous.
 - 13 Corolla lobes of neighboring fls often overlapping; spikes grayish or whitish, shiny, much shorter than scape.

- 14 Abaxial 2 sep connate; scapes groove-angled 9. *P. lanceolata*
- 14 Sep nearly distinct; spikes rounded..... 12. *P. media*
- 13 Corolla lobes of neighboring fls not overlapping; spike brownish or greenish, dull, shorter or longer than scape.
- 15 Caudices absent.
 - 16 Capsules 4–5 mm, dehiscent to middle; seeds 0.5–1 mm, 5–35; bracts 0.5–1 mm..... 10. *P. major*
 - 16 Capsules 4–6(–8) mm, dehiscent from proximal to middle; seeds 1.5–2 mm, 4–5(–8); bracts 2 mm..... 16. *P. rugelii*
- 15 Caudices massive.
 - 17 Lvs broadly ovate to cordate-ovate, lateral veins branching from midvein within blade; caudices glabrous 4. *P. cordata*
 - 17 Lvs lanceolate to elliptic, lateral veins branching from base of blade; brown-woolly 7. *P. eriopoda*

1. *Plantago arenaria* Waldst. & Kit. (sandy) Sand P. Annuals, taprooted, roots slender; stems 100–350 mm, freely branched; lvs cauline, opposite, 60–80 × 1–3 mm; blade green or dark green when dry, linear to linear-lanceolate, pubescent, margins entire or slightly toothed, veins conspicuous or inconspicuous; scapes erect, 10–65 mm, surpassing lvs, usu pubescent but not glandular-hairy; spikes greenish or brownish, dull, 15–75 mm, densely fld, corolla lobes of neighboring fls not overlapping; bracts 2–5 mm, 1–1.5× length of sep, proximal bracts different from distal, pointed at tip; fls: sep 2–3 mm; corolla radially symmetric, open, tube glabrous, lobes reflexed, not forming beak, 2–4 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2, 2–2.5 mm. $2n=12$. Disturbed habitats; intr from Eur.; ME to MB, s. to VA, IL, and MO, coastal w. N. Am. Late summer–fall. Infreq.

Plantago indica L. and *P. psyllium* L., dubious in terms of nomenclature, are possibly illegitimate names. In the past, these names often were applied to this and *P. afra*.

2. *Plantago afra* L. (African) Glandular P. Annuals, taprooted, roots slender; stems 100–350 mm, freely branched; lvs cauline, opposite, 30–60 × 1–4 mm; blade green or dark green when dry, linear to linear-lanceolate, pubescent, margins entire or slightly toothed, veins conspicuous or inconspicuous; scapes erect, 30–50 mm, surpassing lvs, usu glandular-hairy above; spikes greenish or brownish, dull, 40–65 mm, densely fld, corolla lobes of neighboring fls not overlapping; bracts 3–5 mm, 1–1.5× length of sep, all bracts similar; fls: sep 3–3.5 mm; corolla radially symmetric, open, tube glabrous, lobes reflexed, not forming beak, 2–3 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2, 2–3 mm. $2n=12$. Disturbed habitats; MA, intr from Eur.; since it is invasive in Eurasia, it is expected in other U.S. states. Late summer–fall. Rare, local.

3. *Plantago aristata* Michx. (awned) Largebract P. Annuals, taprooted, roots slender; stems 20–40 mm; lvs basal, alternate, 30–200 × 3–7 mm; blade usu dark green when dry, sometimes green, linear, abaxial surface villous, adaxial surface glabrous or sparsely villous, margin usu entire, rarely with inconspicuous teeth, veins conspicuous or inconspicuous; scapes erect, 100–500 mm, surpassing lvs, with long and short, antrorse

hairs; spikes greenish or brownish, dull, 80–150 mm, densely fld, corolla lobes of neighboring fls not overlapping; bracts almost linear, 15–30 mm, 2–12× length of sep; fls: sep 2.7–3.7 mm; corolla bilaterally symmetric, open, tube glabrous, lobes reflexed, not forming beak, adaxial 1.4–2.3 mm, base deeply cordate, lateral lobes symmetric; stamens 4, connective elongated beyond anther, acute; capsules lanceoloid; seeds 2, 2.5–2.9 mm. $2n=20$. Roadsides, pastures, disturbed grounds; in all of our range and in most other states of N. Am., excluding those in the Great Basin. Spring–fall. Infreq; secure.

4. *Plantago cordata* Lam. (heart-shaped) Kingroot, Heartleaf P. Perennials, caudex massive, glabrous, fibrous-rooted, roots thick; stems 0–20 mm; lvs basal, alternate, 100–300 × 80–200 mm; petiole ≤300 mm; blade dark green when dry, broadly ovate to cordate-ovate, glabrous, margins entire, veins conspicuous, lateral branching from midvein within blade; scapes erect, 200–300 mm, surpassing lvs, glabrous; spikes brownish or greenish, dull, 100–500 mm, loosely fld, corolla lobes of neighboring fls not overlapping, stem surface clearly visible between fls; bracts round-ovate, 2 mm, 0.8–1× length of sep; fls: sep 2–2.5 mm; corolla radially symmetric, open, tube glabrous, lobes spreading, not forming beak, 2–2.5 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2–4, 2.5–3.5 mm. $2n=24$. Rocky or gravelly beds of shallow, slow-moving streams, sloughs, rarely in upper intertidal zones of large rivers; throughout our entire range, s. to FL. Late spring–early summer. Rare; secure, concern: ON, IL, IN, MD, MI, OH, VA, WI.

5. *Plantago coronopus* L. (crow's foot, ref to lf shape) Buckhorn P. Annuals or, occasionally, biennials, taprooted, roots stout; stems 0–10 mm; lvs basal, alternate, 20–80 × 5–15 mm; blade usu green when dry, sometimes dark green, lanceolate, usu septate-villous or, sometimes, glabrate, margins mostly 1–2-pinnatifid, veins conspicuous or inconspicuous; scapes usu decumbent, sometimes erect, 15–150 mm, surpassing lvs, villous; spikes greenish, purplish, or brownish, dull, 30–300 mm, densely fld, corolla lobes of neighboring fls not overlapping; bracts ovate to lanceolate, 1.5–2 mm, 0.5–0.6× length of sep; fls: sep 3 mm; corolla radially symmetric, open, tube pubescent, lobes reflexed, not forming beak, 1 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds (2–)4 plus 1 smaller one of different shape near top of centr placenta, 1–1.5 mm. $2n=10$ (in Eurasia, also 20 and 30). Moist, gravelly or sandy soils, usu near the coast; possibly intr from Eurasia; distribution sporadic: NB, MA, NJ, NY, PA, occasionally TX and w. coast. Summer. Infreq; secure.

6. *Plantago elongata* Pursh (elongated) Prairie P. Annuals, taprooted, roots slender; stems 0–5 mm; lvs basal, alternate, 10–70 × 1–2 mm; blade green when dry, linear to almost filiform, glabrous or pubescent, margin entire, veins conspicuous or inconspicuous; scapes erect or ascending, 10–80 mm, surpassing lvs, glabrous or pubescent; spikes greenish or brownish, dull, 50–150 mm, densely or loosely fld, corolla lobes of neighboring fls not overlapping; bracts ovate, 2–2.5 mm, 0.8–1.2× length of sep; fls: sep 2–2.5 mm; corolla radially symmetric, open, tube glabrous, lobes usu spreading or reflexed, not forming beak, 0.5–1 mm, base obtuse; stamens 2, connective inconspicuous; capsules lanceoloid; seeds (3–)4–9(–12), 1.5–2.5 mm. $2n=12, 20, 36$.

Mostly on moist soil, frequently weedy; MN, also in most of Great Plains and w. U.S. Spring–early summer. Infreq; secure.

7. *Plantago eriopoda* Torr. (woolly base) Woolly-crowned or Redwood P. Perennials, caudex massive, brown-woolly, taprooted, roots thick; stems 0–20 mm; lvs basal, alternate, 50–250 × 15–70 mm; blade usu green when dry, sometimes dark green, lanceolate to elliptic, glabrous or pubescent, margins entire, veins conspicuous, lateral branching from base of blade; scapes erect, 50–300 mm, surpassing lvs, glabrous or pubescent; spikes brownish or greenish, dull, 80–500 mm, loosely fld, corolla lobes of neighboring fls not overlapping, stem surface clearly visible between fls; bracts broadly ovate, 2–2.5 mm, 0.8–1.2× length of sep; fls: sep 2–2.5 mm; corolla radially symmetric, open, tube glabrous, lobes spreading, not forming beak, 1–1.5 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2–4, 2–2.5 mm. $2n=24$. Saline or alkaline soil in meadows, prairies, and marshes; QC, NY to MN, IA; widespread across Great Plains and w. U.S. Late spring–early summer. Infreq; secure.

8. *Plantago heterophylla* Nutt. (diverse lvs) Many-seeded or Slender P. Annuals, taprooted, roots slender; stems 0–10 mm; lvs basal, alternate, 30–80 × 1–4 mm; blade green when dry, linear, usu pubescent, sometimes glabrous, margins with lobed teeth, rarely entire, veins conspicuous or inconspicuous; scapes erect or ascending, 5–60 mm, surpassing lvs, usu pubescent, sometimes glabrous; spikes greenish or brownish, dull, 50–150 mm, loosely or densely fld, corolla lobes of neighboring fls not overlapping; bracts ovate, 2 mm, 0.9–1.1× length of sep; fls: sep 2 mm; corolla radially symmetric, open, tube glabrous, lobes spreading, not forming beak, 0.5–1 mm, base obtuse; stamens 2, connective inconspicuous; capsules lanceoloid; seeds 10–25(–30), 0.5–0.8 mm. $2n=12$. Mostly on moist, sandy soil, frequently weedy; NY to IA, s. to FL and TX. Spring–early summer. Infreq; secure.

9. *Plantago lanceolata* L. (lanceolate, ref to lvs) English or Narrowleaf P., Ribgrass. Perennials, caudex short, pubescent or glabrous, fibrous-rooted, roots slender; stems 0–20 mm; lvs basal, alternate, 30–300 × 5–25 mm; blade usu green when dry, sometimes dark green, lanceolate to oblanceolate, glabrous or sericeous, margins entire or slightly and irregularly toothed, veins conspicuous; scapes usu erect, rarely ascending, groove-angled, 300–400 mm, surpassing lvs, pubescent; spikes grayish or whitish, shiny, 100–450 mm, much shorter than scape, densely fld, corolla lobes of neighboring fls often overlapping; bracts broadly ovate, 2 mm, 0.8–1× length of sep; fls: sep 2–2.5 mm, adaxial 2 connate; corolla radially symmetric, open, tube glabrous, lobes reflexed, not forming beak, 2–2.5 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds (1–)2, 2–3 mm. $2n=12$. Disturbed areas on neutral and basic soil; throughout our entire range; intr from Eur.; intr globally (except Antarctica) and therefore a truly cosmop sp. Summer. Common.

The name *Plantago altissima* L. has sometimes been misappl to N. Am. pls.

10. *Plantago major* L. (greater) Common P. Perennials or, sometimes, annuals, caudex absent, fibrous-rooted, roots thick; stems 0–20 mm; lvs basal, alternate, 20–150 × 10–120 mm; petiole ≤200 mm; blade usu green when dry, sometimes yellow, ovate to cordate-

ovate, glabrous or hirsute, margins entire or irregularly toothed, veins conspicuous; scapes erect or ascending, 50–250 mm, surpassing or not surpassing lvs, glabrous or hirsute; spikes brownish or greenish, dull, 50–300 mm, densely fld, corolla lobes of neighboring fls not overlapping; bracts lanceolate, 0.5–1 mm, 0.3–0.7× length of sep; fls: sep 1.5–2 mm; corolla radially symmetric, open, tube glabrous, lobes reflexed, not forming beak, 0.5–1 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid, 4–5 mm, dehiscent to middle; seeds 5–35, 0.5–1 mm. $2n=12$. Mostly in disturbed areas; intr from Eurasia and occurring throughout our entire range; intr globally. Summer. Common.

Plantago major ssp. *intermedia* (DC.) Arcang. is often accepted by European botanists as a separate sp., *P. uliginosa* F. W. Schmidt. Observations suggest that pls referable to this taxon occurring in the U.S. as *P. major* ssp. *intermedia* are distinguished by more abundant (11–35) and smaller (0.8–1 mm) seeds, ascending spikes, ovoid capsules, and elliptic or lanceolate lvs. However, without detailed morphologic and genetic investigations of N. Am. pls, it is not possible to draw any conclusions about the status and distribution of this or any other possible infraspecific taxa of *P. major* in N. Am.

11. *Plantago maritima* L. (marine) Seaside P., Goose Tongue. Usual perennials, rarely annuals, caudex, when perennial, massive, glabrous or pubescent, taprooted, roots thick; stems 0–40 mm, usual branched; lvs basal, alternate, 10–220 × 10–15 mm; blade usual dark green when dry, sometimes green or yellow, linear to lanceolate, usual glabrous, sometimes pubescent, margins entire or with a few teeth, veins inconspicuous; scapes erect or ascending, 40–120 mm, surpassing lvs, glabrous or hirsute; spikes greenish or brownish, dull, 50–200 mm, densely or relatively loosely fld, corolla lobes of neighboring fls not overlapping; bracts broadly ovate, 1.5–4 mm, 0.8–1.2× length of sep; fls: sep 1.5–3.5 mm; corolla radially symmetric, open, tube hairy, lobes reflexed, not forming beak, 1–1.5 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 1–3, 1.5–3 mm. $2n=24$. Marine shorelines, salt marshes, often in crevices of large rocks; NS to MB, s. to MD; freq along Pacific seashores. Summer. Common; secure.

12. *Plantago media* L. (mid-sized) Hoary P. Perennials, caudex small, glabrous or pubescent, taprooted, roots thick; stems 0–20 mm; lvs basal, alternate, prostrate or, sometimes, ascending, 40–200 × 30–70 mm; blade usual green when dry, sometimes dark green, elliptic to ovate, with 0.5 mm septate hairs, margins entire or irregularly toothed, veins conspicuous; scapes erect or ascending, smooth, 80–300 mm, surpassing lvs, hirsute; spikes rounded, much shorter than scapes, grayish or whitish, shiny, 100–400 mm, densely fld, corolla lobes of neighboring fls overlapping; bracts ovate, 1.8–2 mm, 0.9–1× length of sep; fls: sep distinct, 2 mm; corolla radially symmetric, open, tube glabrous, lobes reflexed, not forming beak, 1.5 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2–4, 2 mm. $2n=12, 24$. Disturbed areas on neutral and basic soil; NS to MB, s. to NJ and IL; intr from Eurasia. Summer. Infreq.

13. *Plantago patagonica* Jacq. (from Patagonia) Woolly P. Annuals, taprooted, roots slender; stems 0–15 mm; lvs basal, alternate, 50–120 × 1–4 mm; blade usual green when dry, rarely dark green, linear, villous, margins usual entire, rarely with few inconspicuous teeth, veins conspicuous or inconspicuous; scapes erect, 40–240 mm, surpassing lvs, with

long and short, antrorse hairs and long, patent hairs; spikes grayish or brownish, dull, 40–120 mm, densely fld, corolla lobes of neighboring fls not overlapping; bracts triangular or narrowly ovate, 2–10 mm, 1–2× length of sep, apices acute or acuminate; fls: sep 2.2–4.8 mm; corolla bilaterally symmetric, open, tube glabrous, lobes reflexed, not forming beak, adaxial 1.6–2.1 mm, base cordate; stamens 4, connective elongated beyond anther, acute; capsules lanceoloid; seeds 2, 2.2–2.6 mm. $2n=20$. Dry, sandy soil, grasslands, openings, disturbed communities; NS to MN, s. to VA, KY, and MO, also all centr and w. states; this sp. has a bipolar range (N. Am. and Patagonia). Early summer. Freq; secure.

14. *Plantago pusilla* Nutt. (miniature-sized) Little or Dwarf P. Annuals, taprooted, roots slender; stems 0–5 mm; lvs basal, alternate, 20–70 × 1–2 mm; blade green when dry, linear, pubescent or glabrous, margins usu entire, sometimes toothed, veins conspicuous or inconspicuous; scapes erect or ascending, 15–60 mm, surpassing lvs, usu pubescent, sometimes glabrous; spikes greenish or brownish, dull, 20–100 mm, loosely or densely fld, corolla lobes of neighboring fls not overlapping; bracts triangular-ovate, 1.5–2 mm, 0.9–1.1× length of sep; fls: sep 1.5–2 mm; corolla radially symmetric, usu not open, tube glabrous, lobes erect, forming beak, 0.5 mm, base obtuse; stamens 2, connective inconspicuous; capsules lanceoloid; seeds 4, 0.8–1.3 mm. $2n=12$. Dry to moist, sandy, alluvial soil, often weedy; MA to MO, s. to FL and TX. Spring–early summer. Infreq; secure, concern: MD, NJ.

15. *Plantago rhodosperma* Decne. (red seed) Redseed P. Annuals, taprooted, roots slender; stems 0–10 mm; lvs basal, alternate, 60–290 × 7–30 mm; blade green when dry, obovate or elliptic, pilose, margins prominently toothed, veins conspicuous; scapes erect or, sometimes, ascending, 15–150 mm, surpassing lvs, with long, patent hairs; spikes greenish, yellowish, or brownish, dull, 35–300 mm, densely or loosely fld, corolla lobes of neighboring fls not overlapping; bracts narrowly triangular or triangular, 2.5–3.2 mm, 0.7–1.1× length of sep; fls: sep 2.7–3.6 mm, apex acuminate, asymmetric; corolla radially symmetric, usu not open, tube glabrous, lobes erect, forming beak, 2–3.1 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2, dark red, 2.3–2.8 mm, adaxial side concave. $2n=24$. Rocky or sandy soil, grasslands, disturbed areas; KY, IL, MO, s. to GA, TX, and CA. Spring. Infreq; secure.

16. *Plantago rugelii* Decne. (for Ferdinand Ignatius Xavier Rugel, 1806–1879, Swiss and Am. botanist) American or Blackseed P. Perennials or, sometimes, annuals, caudex absent, fibrous-rooted, roots thick; stems 0–20 mm; lvs basal, alternate, 20–150 × 10–120 mm; petiole ≤200 mm; blade usu green when dry, sometimes yellow, ovate to cordate-ovate, glabrous or hirsute, margins entire or irregularly toothed, veins conspicuous; scapes erect, 50–250 mm, surpassing lvs, glabrous or hirsute; spikes brownish or greenish, dull, 50–300 mm, densely or relatively loosely fld, corolla lobes of neighboring fls not overlapping; bracts narrowly lanceolate, 2 mm, 1–1.2× length of sep; fls: sep 1.5–2 mm; corolla radially symmetric, open, tube glabrous, lobes reflexed, not forming beak, 0.5–1 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid, 4–6(–8) mm, dehiscing from proximal to middle; seeds 4–5(–8), 1.5–2 mm. $2n=24$. Open woods, meadows, pastures, waste places; NS to ON and MI, s. to FL and TX. Summer. Infreq; secure, concern: NS.

When young, *Plantago major* and *P. rugelii* are morphologically indistinguishable; they may be differentiated with certainty only at fruiting stage.

17. *Plantago virginica* L. (from Virginia) Virginia P. Annuals, taprooted, roots slender; stems 0–20 mm; lvs basal, alternate, 20–120 × 4–25 mm; blade green when dry, obovate or narrowly obovate, pilose or almost glabrous, margins toothed, veins conspicuous; scapes erect or, sometimes, ascending, 30–240 mm, with long, patent hairs; spikes greenish or yellowish, dull, 38–260 mm, densely or loosely fld, corolla lobes of neighboring fls not overlapping; bracts narrowly ovate or ovate, 1.6–2.4 mm, 0.7–1× length of sep; fls: sep 1.5–2.4 mm, apex obtuse; corolla radially symmetric, usu not open, tube glabrous, lobes erect, forming beak, 1.1–2.9 mm, base obtuse; stamens 4, connective inconspicuous; capsules lanceoloid; seeds 2, brown or yellowish-brown, 1.6–2 mm, adaxial side deeply concave. $2n=24$. Sandy soil, often weedy; ME to ON and MI, s. to FL, TX, and CA. Spring–early summer. Infreq; secure.

18. *Plantago wrightiana* Decne. (for Charles Wright, 1811–1885, Am. botanist) Wright's P. Annuals, taprooted, roots slender; stems 10–40 mm; lvs basal, alternate, 60–160 × 3–5 mm; blade usu dark green when dry, sometimes green, linear, abaxial surface villous, adaxial surface glabrous or, rarely, sparsely villous, margins entire, veins conspicuous or inconspicuous; scapes erect, 800–1600 mm, surpassing lvs, with long and short, antrorse hairs; spikes greenish or brownish, dull, 150–250 mm, densely fld, corolla lobes of neighboring fls overlapping or not overlapping; bracts ovate or triangular, 1–3.5 mm, 0.4–0.8× length of sep; fls: sep 3–4 mm; corolla bilaterally symmetric, open, tube glabrous, lobes reflexed, not forming beak, adaxial 2.4–3 mm, base cordate, lateral lobes asymmetric; stamens 4, connective elongated beyond anther, acute; capsules lanceoloid; seeds 2, 2.8–3.2 mm. $2n=20$. Sandy and gravelly soil, often along roads; MD to KY, s. to FL and TX. Summer. Infreq; secure.

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