

## PAPAVERACEAE, the Poppy Family

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Herbs or shrubs, often with milky or colored sap; lvs mostly alternate, dissected or lobed; fls often large, radially or bilaterally symmetric, perfect, hypogynous; sep usu 2(3), fully or partially enclosing bud, usu caducous; pet  $\geq 4$  (rarely 0), distinct or inner pair connivent, often showy; stamens 6 or numerous; nectaries none or present as spurs at bases of filaments; pistil of 2(–4), seldom (as in *Argemone* and *Papaver*) more numerous carpels, connate to form compound, typically 1-locular ovary; ovules numerous on parietal placentae, but the latter sometimes (as in *Papaver*) deeply intruded as partial partitions, or ovary seldom (as in *Glaucium*) fully partitioned into 2 locules; fr typically a 1-locular capsule, dehiscent by partial or complete abscission of elongate valves usu alternating with placentae, the latter forming persistent replum, or valves sometimes (as in *Argemone* and *Papaver*) reduced and subapical, so that capsule opens by ring of pores, or fr sometimes dry and indehiscent (e.g., in *Fumaria*; capsule 2-locular with deciduous valves in *Glaucium*); seeds with copious endosperm and small, dicotyledonous embryo, often arillate. 44/780, mostly N. Temperate.

Morphologic synapomorphies: perianth 2-merous, sep caducous, carpels connate, frs capsular, placentation parietal.

Two subfamilies, Fumarioideae and Papaveroideae, occur in our area. Authors of recent floristic works often treat both of these taxa as families. Given the placement of a pivotal member of Papaveraceae s.l., the Japanese *Pteridophyllum*, is still uncertain, it is best to treat the family broadly.

Popular in gardens, members of this family sometimes escape cult. Those that have been recorded as rare escapes from within our range, but do not appear to be truly established, include *Hypecoum imberbe* Sm., *H. pendulum* L., and *Platystemon californicus* Benth. Additional waifs are discussed under the appropriate genera.

- 1 Fls bilaterally symmetric; inner pet connivent; sap usu colorless (Fumarioideae).
  - 2 Cor with 2 planes of symmetry, 2 outer pet spurred or saccate at base.
    - 3 Lvs all basal; flowering stems leafless..... 6. *Dicentra*
    - 3 Lvs cauline; flowering stems leafy.
      - 4 Pls climbing and often sprawling; cor narrowly ovoid, persistent ..... 1. *Adlumia*
      - 4 Pls erect; cor cordate, withering and dropping ..... 10. *Lamprocapnos*
  - 2 Cor with 1 plane of symmetry, 1 outer pet spurred or saccate at base.
    - 5 Fr with persistent style; ovary elongate.
      - 6 Fls yellow throughout or purple, rarely red, pink, or white; infl racemose ..... 5. *Corydalis*

- 6 Fls pale or deep pink with yellow tips; infl cymose..... 3. *Capnoides*
- 5 Fr with deciduous style; ovary subglobose or oblong.
  - 7 Fls dark red-purple or dark red, at least at tips; fr 1-seeded, subglobose, indehiscent ..... 8. *Fumaria*
  - 7 Fls yellow or cream-colored; fr 3–13-seeded, oblong, dehiscent ..... 13. *Pseudofumaria*
- 1 Fls radially symmetric; all pet spreading, or pet absent; sap usu colored or milky (Papaveroideae).
  - 8 Receptacle expanded and with rim flared ..... 7. *Eschscholzia*
  - 8 Receptacle  $\pm$  same diameter as peduncle and with rim unflared.
    - 9 Pet 8(–16); fl solitary on scape; lf 1, basal ..... 14. *Sanguinaria*
    - 9 Pet 4(–6), or absent; cauline lvs present.
      - 10 Pet absent; infl paniculate..... 11. *Macleaya*
      - 10 Pet present; infl umbelliform, cymiform, cymose, or fl solitary.
        - 11 Foliage spiny ..... 2. *Argemone*
        - 11 Foliage not spiny.
          - 12 Fls red, purple, pink, orange, or white..... 12. *Papaver*
          - 12 Fls yellow.
            - 13 Style elongate, ca 1 cm; fr ellipsoid or ovoid, bristly ..... 15. *Stylophorum*
            - 13 Style very short or none; fr linear, smooth.
              - 14 Fls in small, umbel-like infls; pet 1 cm; fr 2–5 cm, 1-locular..... 4. *Chelidonium*
              - 14 Fls solitary; pet 2.5–5 cm; fr 15–30 cm, 2-locular. 9. *Glaucium*

**1. ADLUMIA** DC., nom. conserv. (commem John Adlum, 1759–1836, Am. horticulturist) Biennial herbaceous vines, climbing by upper part of rachis of pinnate-decompound lvs, often sprawling over surrounding vegetation, with colorless sap; fls bilaterally symmetric with 2 planes of symmetry, pearly-pink or white, in axillary panicles, pendulous; sep scale-like; cor narrowly compressed-ovoid, subcordate at base; pet all connate ca 50% their length, outer 2 saccate at base, constricted distally to form ovate appendage, inner narrow, dilated at summit into transversely oval appendage; cor persistent after anthesis with little change of color, becoming spongy, enclosing slender, 2-valved capsule. 2, N. Am. and e. Asia.

**1. *Adlumia fungosa*** (Aiton) Britton, Sterns & Poggenb. (spongy, appl to cor) Alleghenyvine. Acaulescent during the first year, with several ascending, non-prehensile, decompound lvs; climbing the second year to 4 m, with slender, elongate stems and large, delicate, prehensile lvs, their rachis elongate and uppermost lflets greatly reduced;  $2n=32$ . Forests, usu rocky, chiefly in the mts; QC to MB, s. to DE, NC, TN, and IN; intr BC, NS. Jun-Sep. Infreq to rare, local; secure, concern: QC, DE, IN, KY, ME, MD, NH, NJ, OH, RI, WV.

**2. ARGEMONE** L. (ancient name of herb mentioned by Pliny) Prickly Poppy. Coarse herbs with yellow sap and thistle-like foliage; stems, lvs, and sep spiny; infl cymose; fls radially symmetric, with receptacle  $\pm$  same diameter as peduncle and its rim unflared,

large, terminating branches; sep generally 3; pet generally 6, spreading; ovary 1-locular, with 4–6 parietal placentae; style short or none; stigma dilated, 4–6-radiate; capsule spiny, upper 33% opening by valves. 32, W. Hemisphere, intr elsewhere.

- 1 Pet yellow or cream; stamens 30–50.....2. *A. mexicana*
- 1 Pet white, varying to pink or lavender; stamens >100.
  - 2 Sep horns 3–6(–10) mm; fl buds subglobose to broadly ellipsoid ..... 1. *A. albiflora*
  - 2 Sep horns 6–15 mm; fl buds ellipsoid-oblong.....3. *A. polyanthemos*

**1. Argemone albiflora** Hornem. (white-flowered) White P. P. Annual or biennial, 4–10(–15) dm; lvs not blotched; fls usu closely subtended by upper lvs; buds subglobose to broadly ellipsoid; sep horns 3–6(–10) mm; pet white or rarely suffused with pink, 2–4 cm; stamens >100;  $2n=28$ . Dry, open, often sandy places, especially in disturbed sites; native to se. U.S., in our range occasionally escaped from cult n. to WI and MA. May–Aug. Our plants are ssp. *albiflora*. [*A. alba* F. Lestib., *A. intermedia* Sweet, misapplied]

**2. Argemone mexicana** L. (Mexican) Mexican P. Annual, mostly 2.5–8 dm; lvs usu blotched with paler green; fls closely subtended by upper lvs; pet yellow or cream, 1.5–3.5 cm; stamens 30–50;  $2n=28$ . Waste places, disturbed ground; native of trop and subtrop Am., occasionally escaped from cult as far n. as ON. May–Sep.

**3. Argemone polyanthemos** (Fedde) G. B. Ownbey (many-flowered) Annual or biennial, 4–8(–12) dm; lvs usu blotched with paler green; fls closely subtended by upper lvs; buds ellipsoid-oblong; sep horns 6–15 mm; pet white or rarely lavender, 3.5–4.5 cm; stamens >150;  $2n=28$ . Waste places, disturbed ground; native of centr U.S., rarely escaped in w. portions of our range e. to IN. Jun–Sep.

**3. CAPNOIDES** Mill. (*G capnos*, resembling smoke) Rock Harlequin. Erect herbs with colorless sap; lvs 2 or 3× pinnately compound; fls bilaterally symmetric with 1 plane of symmetry, pale or deep pink with yellow tips, in few-fl'd cymes; sep ovate; cor with 1 outer pet with short, basal spur; ovary elongate; capsules erect, linear, many-seeded, with persistent style. 1, N. Am.

**1. Capnoides sempervirens** (L.) Borkh. (evergreen, appl to overwintering rosettes of first year) Glauous biennial 3–8(–10) dm, much-branched at least above; lower lvs petioled, upper sessile; fls in small cymes at ends of branches; bracts minute, lanceolate; sep 2–4 mm; cor (10–)12–17 mm, incl 2.5–5 mm spur; fr 2.5–4(–5) cm; seeds ca 1 mm wide, with obtuse margin;  $2n=16$ . Dry or rocky woods, esp rock outcrops, openings; NL to AK, s. to PA, n. IL, MT, and BC, and along the mts to n. GA. May–Sep. Infreq to rare; secure, concern: IL, IN, IA. [*Corydalis sempervirens* (L.) Pers.]

**4. CHELIDONIUM** L. (*G chelidon*, swallow; ancient Greeks thought mother swallows used sap of this pl to strengthen sight of their young) Celandine. Biennial herbs with saffron-colored sap; lvs deeply lobed; infls umbelliform, few-fl'd; fls radially symmetric, with receptacle ± same diameter as peduncle and its rim unflared; sep 2; pet 4,

yellow, spreading; ovary narrowly cylindrical, glabrous, narrowed above into very short style with 2-lobed stigma; fr linear, smooth, 1-locular, dehiscent from base upwards by elongate valves; seeds arillate. 1, Eurasia, intr N. Am.

**1. Chelidonium majus** L. (larger) Branched, 3–8 dm; cauline lvs several, alternate, much like those of *Stylophorum diphyllum*; sep glabrous; pet 1 cm; fr 2–5 cm;  $2n=12$ . Eurasian sp., well established and often weedy in moist, usu shady soil from NS to BC, s. to GA and UT. Apr–Sep.

**5. CORYDALIS** DC., nom. conserv. (G *corydallion*, ancient name for the crested lark; flowers of this genus have spurs resembling those of the birds) Corydalis. Herbs with colorless sap; lvs cauline, alternate, bipinnately dissected; infls short, bracteate racemes of short-pedicelled fls; fls bilaterally symmetric with 1 plane of symmetry; sep small, appressed; pet elongate,  $\pm$  connivent, upper 1 of 2 outer ones spurred at base, apex somewhat dilated and keeled or winged, lower 1 narrower, similarly dilated and keeled, but not spurred at base (sometimes gibbous), 2 inner (lateral) pet narrower, similarly dilated and keeled or winged, and connivent over stigma; ovary elongate; capsule slender, often torulose, 2-valved, with persistent replum and slender, persistent style; seeds black, shining. 450, mainly n. temperate, esp e. Asia.

- 1 Fls purple, red, pink, or white.
  - 2 Ultimate lfl lobes 1–9 mm wide, obtuse (though often apiculate); tuber 1–2.5 cm wide; fr non-explosively dehiscent ..... 7. *C. solida*
  - 2 Ultimate lfl lobes 0.5–2 mm wide, sharply acute; tuber lacking or 0.1–0.8 cm wide; fr explosively dehiscent ..... 5. *C. incisa*
- 1 Fls yellow.
  - 3 Spurred petal 7–9 mm, spur 1–2 mm; capsules on pedicels (5–)10–15 mm long ..... 4. *C. flavula*
  - 3 Spurred petal 11–22 mm, spur 4–9 mm; capsules on pedicels 2–5 mm long.
    - 4 Spurred petal 16–22 mm; capsules densely pubescent with swollen hairs ..... 2. *C. crystallina*
    - 4 Spurred petal 10–16(–18) mm; capsules glabrous or nearly so.
      - 5 Seeds 2 mm wide; pls usu with only chasmogamous fls.
        - 6 Seeds smooth (under magnification) ..... 1. *C. aurea*
        - 6 Seeds faintly reticulate-roughened (under magnification) ..... 3. *C. curvisiliqua*
      - 5 Seeds 1.5 mm wide; pls usu with cleistogamous and chasmogamous fls.
        - 7 Fr usu 10–16 mm long; infls of chasmogamous fls barely or not exceeding lvs; pet spur usu slightly constricted proximal to apex ..... 6b. *C. micrantha* ssp. *micrantha*
        - 7 Fr usu 15–20 mm long; infls of chasmogamous fls usu greatly exceeding lvs; pet spur usu unconstricted ..... 6a. *C. micrantha* ssp. *australis*

**1. Corydalis aurea** Willd. (golden) Golden C. Prostrate-ascending annual or biennial, 2–5 dm, non-tuberous; racemes dense, 1–3 cm, often surpassed by upper lvs; bracts lanceolate; fls usu all chasmogamous; sep broadly ovate, 1.5–2 mm, erose; cor bright

yellow throughout, 13–16 mm, incl 4–5 mm spur; outer pet folded distally along median line into conspicuous but wingless keel; fr spreading or drooping, 15–25 mm, glabrous, on pedicel 5 mm long; seeds ca 2 mm wide, with narrow ring-margin, smooth;  $2n=16$ . Forest clearings, other recently disturbed sites, rocky banks, sandy soil; QC to AK, s. to PA, MI, n. IL., and MN, and widespread in w. U.S. May–Jul. Rare; secure, concern: QC, IL, IA, NH, NY, PA, VT. Our pls are ssp. *aurea*; ssp. *occidentalis* (Engelm. ex A. Gray) G. B. Ownbey, often attr to our range [as var. *occidentalis* Engelm. ex A. Gray or *C. montana* Engelm. ex A. Gray] is more southwestern.

**2. *Corydalis crystallina*** (Torrey & A. Gray) A. Gray (crystalline) Mealy C. Erect or ascending annual, 2–4 dm, non-tuberous; infls (8–)12–15(–18)-fld; sep broadly ovate or cordate, 2 mm; cor bright yellow throughout; outer pet 16–22 mm, incl 6–8 mm spur; fr erect, 14–18 mm, densely pubescent with swollen, obtuse hairs, on pedicel 2 mm long; seeds ca 2 mm wide, without ring-margin. Fields, prairies, open woods; MO to KS, s. to AR and TX. Apr–Jun. Infreq; secure.

**3. *Corydalis curvisiliqua*** (A. Gray) A. Gray (curved silique) Erect or ascending annual or biennial, 1–4 dm, non-tuberous; infls 6–18-fld; fls usu all chasmogamous; sep ovate, 1 mm; cor bright yellow throughout; outer pet 15–18 mm, incl 7–9 mm spur; fr erect, 20–35 mm, glabrous, on pedicel 2–3 mm long; seeds 2 mm wide, with or without ring-margin, faintly reticulate-roughened. Disturbed areas; w. IL s. to TX. Apr–May. Infreq; secure, concern: IA. Our plants are ssp. *grandibracteata* (Fedde) G. B. Ownbey.

**4. *Corydalis flavula*** (Raf.) DC. (diminutive of yellow) Short-spurred C. Green or glaucous annual, 1–3 dm, at first erect, often becoming prostrate, non-tuberous; racemes barely if at all exceeding lvs; bracts ovate, foliaceous, 3–8 mm; cor pale yellow throughout, 7–9 mm, incl 1–2 mm spur, crest of upper pet usu toothed; fls sometimes cleistogamous; frs spreading or drooping, 15–20 mm, on pedicels (5–)10–15 mm; seeds ca. 2 mm wide, with narrow, acute ring-margin;  $2n=16$ . Moist woods, floodplains, clearings, often most common in lightly disturbed sites; e. NY to s. ON, s. MI, and KS, s. to NC, LA, and OK. Apr–May. Freq; secure, concern: ON, CT, DE, MI.

**5. *Corydalis incisa*** Pers. (cut sharply, appl to leaflets) Cut-leaved C. Erect biennial, 1.5–5.5 dm, non-tuberous or tubers 1–8 mm wide; stems narrowly, longitudinally winged; lvs deeply, sharply lobed, ultimate lobes sharply acute, 0.5–2 mm wide; cor usu purplish-pink; outer pet 15–18 mm, incl 5–10 mm spur; fr drooping, 12–15 mm long, on pedicels 13–18 mm long, explosively dehiscent; seeds 1.4–1.6 mm wide. Moist woods, esp silty-sandy alluvium on floodplains; native to e. Asia, intr s. NY, and expected elsewhere due to its weediness. Apr–May.

**6. *Corydalis micrantha*** (A. Gray) A. Gray (tiny-flowered) Slender C. Erect or ascending annual, 1–3 dm, glaucous or nearly green, non-tuberous; racemes barely to much surpassing lvs; bracts narrowly lanceolate; cor pale yellow throughout, 11–15 mm, incl 4–6 mm spur, crest of upper pet low, entire; fr  $\pm$  erect, 1–2 cm, glabrous, on pedicel 2–5 mm long; often some or all fls cleistogamous, these 1–5 in a raceme, inconspicuous,

often with smaller fr; seeds ca 1.5 mm wide, without ring-margin;  $2n=16$ . 3 spp., the 2 in our area often difficult to distinguish due to intermediates.

**6a. *Corydalis micrantha* ssp. *australis*** (Chapm.) G. B. Ownbey (southern) Infls of chasmogamous fls usu greatly exceeding lvs, elongate; pet spur usu unconstricted proximal to apex; fr usu 15–20 mm long. Moist, usu sandy soil of often open disturbed sites; s. IL and MO s. to TX, also near coast from NC to FL, w. to TX. Mar–May. Infreq; secure, concern: MO. [*C. campestris* (Britton) J. Buchholz & E. J. Palmer, *C. halei* (Small) Fernald & B. G. Schub.]

**6b. *Corydalis micrantha* ssp. *micrantha*** Infls of chasmogamous fls usu only slightly exceeding lvs or subequal in length to lvs, short; pet spur usu slightly constricted proximal to apex; fr usu 10–16 mm long. Bluffs, banks, hills, open woods, often disturbed; WI to SD, s. to TX, also e. TN and w. NC. Mar–May. Infreq; secure.

**7. *Corydalis solida*** (L.) Swartz (dense) Erect perennial, 0.6–2.5 dm, tuber 1–2.5 cm wide; stems unwinged; lvs shallowly or deeply lobed, ultimate lobes obtuse, often apiculate, 1–9 mm wide; cor purple, red, or white; outer pet 17–22 mm, incl 8–15 mm spur; fr ascending or spreading, 9–17 mm long, on pedicels 4–12 mm long, non-explosively dehiscent; seeds 1.8–2 mm wide. Disturbed areas; native to Eur., rarely escaped from cult in ne. portion of our range. Apr–May.

**6. DICENTRA** Bernh., nom. conserv. (*G dis*, twice, and *kentron*, spur) Perennial herbs with colorless sap; flowering stems leafless; fls bilaterally symmetric with 2 planes of symmetry, showy, pendulous, mostly in racemes or mixed panicles; sep minute; cor ovate or cordate; pet connivent, outer 2 large, saccate or spurred at base, spreading or ascending or reflexed at summit, inner much narrower, connivent toward dilated and ornamented apex; ovary slender, tapering to long style; stigma with 2 crests or horns; fr usu capsular, with persistent replum. 8, N. Am. and e. Asia.

*Dicentra formosa* (Haw.) Walp. is known from MA from 1 collection in the late 1800s. It is not established in our area.

- 1 Fls in mixed panicles; rootstock lacking bulblets ..... 3. *D. eximia*
- 1 Fls in racemes; rootstock covered with bulblets.
  - 2 Cor spurs erect or nearly so, 2–5 mm; fls fragrant; bulblets globose, yellowish ..... 1. *D. canadensis*
  - 2 Cor spurs divergent, 6–11 mm; fls odorless; bulblets ovoid, whitish or pink ..... 2. *D. cucullaria*

**1. *Dicentra canadensis*** (Goldie) Walp. (Canadian) Squirrelcorn. Much like the more frequent and more widespread *D. cucullaria*; bulblets fewer and about 2× as large, globose, yellow or yellow-brown; lvs blue-green, glaucous; fls fragrant; cor narrowly ovate, 12–20 mm, cordate at base, spurs short, 2–5 mm, broadly rounded, erect or scarcely divergent; tips of outer pet divergent, 3–5 mm; nectary spurs 0.5–1 mm.  $2n=64$ . Rich woods; s. ME and s. QC to s. MN, s. to n. GA, TN, and MO. Apr–May. Frequent; secure, concern: CT, ME, NH, NJ.

2. **Dicentra cucullaria** (L.) Bernh. (hooded) Dutchman's Breeches. Rhizome very short, covered with many, small, whitish or pink, tear-shaped bulblets; lvs somewhat yellow-green, not glaucous, long-petioled, broadly triangular in outline, decompose, ultimate segments linear or narrowly oblong; scapes 1–3 dm, bearing terminal raceme of nodding white fls suffused with yellow at summit; fls odorless; cor 15–20 mm, spurs long, 6–11 mm, subacute, divergent; tips of outer pet divergent, 2–5 mm; nectary spurs mostly 2–3 mm.  $2n=32$ . Rich woods; NS and e. QC to e. ND, s. to n. GA, AR, and ne. OK; disj in WA, OR, and ID. Apr–Jun. Common; secure.

3. **Dicentra eximia** (Ker Gawl.) Torr. (exceptional) Wild Bleeding Heart. Lvs and scapes from short, stout, scaly rhizome, without bulblets; lvs eventually to 4 dm (incl petiole), ternately dissected into lanceolate or oblong, coarsely toothed segments; scape 2–5 dm, bearing mixed panicle of nodding pink fls; cor narrowly ovate, 18–25 mm, cordate at base, spurs short, 1–2 mm, rounded, erect; tips of outer pet divergent or reflexed, 5–6 mm; nectary spurs virtually obsolete;  $2n=16$ . Dry or moist mt woods; chiefly s. Appalachian, nw. NJ and s. PA, s. to n. GA; escaped from cult n. to VT, w. to MI and IL. May–Aug. Infreq to rare; secure, concern: MD, NJ, PA.

7. **ESCHSCHOLZIA** Cham. (commem Johann von Eschscholtz, 1793-1831, Estonian biologist who explored the Pacific coast of N. Am.). Herbs with colorless or orange sap; lvs ternately dissected into linear segments; fls radially symmetric, with distally flared receptacles; sep 2, connate and caducous as a unit; pet 4, spreading; ovary 1-locular; stigma sessile, 4–8, linear, spreading; fr cylindrical, 2-valved, dehiscent from base. 12, w. N. Am., intr e. N. Am.

1. **Eschscholzia californica** Cham. (Californian) California Poppy. Perennial or annual, 5–60 cm; lvs basal and cauline, often glaucous; fls long-pedunculate, 3–6 cm wide; pet yellow or orange; frs 3-9 cm. Roadsides, fields, edges of forests; native of w. N. Am., occasionally escaping from cult nearly throughout our range. May–Aug. Our pls are ssp. *californica*.

8. **FUMARIA** L. (smoke, apparently ref to odor of bruised roots) Fumitory. Sprawling, branched, annual herbs with colorless sap; lvs finely dissected; fls bilaterally symmetric with 1 plane of symmetry, small, in terminal racemes; sep small, closely appressed; pet elongate,  $\pm$  connivent, upper 1 of 2 outer ones spurred at base, 2 outer dilated at summit, 2 inner (lateral) connivent at summit over stigma; ovary subglobose; style deciduous; fr 1-seeded, subglobose, indehiscent. Ca. 50, Eurasia, Afr.

1. **Fumaria officinalis** L. (of shops, ref to its economic importance in medicine) Common F. Lax but rather robust, diffusely branched, 2–8 dm; racemes dense, many-fld, 2–4 cm; cor 8 mm, tube red-purple, summit dark red; fr 2.5 mm. Waste places, fields, roadsides; native of Eur. and n. Afr., infreq intr throughout most of our range. May–Aug.

9. **GLAUCIUM** Mill. (*G glaukos*, gray-green, appl to foliage) Horned Poppy. Herbs with saffron-colored sap; lvs large, pinnately lobed; fls radially symmetric, with

receptacle  $\pm$  same diameter as peduncle and its rim unflared, large, yellow, solitary, terminating branches or on leafy-bracted axillary peduncles; sep 2; pet 4, yellow, spreading; ovary cylindrical, 2-locular; style absent or very short; stigma sessile, 2-lobed; fr linear, smooth, usu curved, 2-locular, dehiscent from top downward by elongate valves. 20, Eurasia, intr N. Am.

*Glaucium corniculatum* has been collected a few times in NY and PA, but does not appear to be established in our flora.

**1. Glaucium flavum** Crantz. (yellow) Stout biennial or perennial, 3–9 dm; lvs firm, hairy, lowest petioled, others sessile or nearly so, ovate or oblong, irregularly pinnatifid; fls 5–9 cm wide, short peduncles strongly thickened at maturity; pet 2.5–5 cm; fr 15–30 cm  $\times$  5 mm;  $2n=12, 24$ . Waste places, esp near coast; native of Eurasia, established from MA to VA, and occasionally inland to MI, also OK, OR, and CO. Jun.

**10. LAMPROCAPNOS** Endl. (*G lampro*, brilliant, and *capnos*, smoke) Bleeding Heart. Perennial herbs with colorless sap; flowering stems erect, leafy; fls bilaterally symmetric with 2 planes of symmetry, large, showy, pendulous, in racemes; cor cordate, withering and dropping after anthesis. 1, ne. Asia, intr N. Am.

**1. Lamprocapnos spectabilis** (L.) T. Fukuhara (remarkable) Stems 0.5–1 m tall, leafy; infls terminal and in upper axils, 6–15-fl'd; cor 17–22 mm wide; outer pet 16–19 mm long, pink (occasionally white), pouch-like at base, apices strongly reflexed; inner pet 21–27 mm long, white, exerted well beyond outer pet. Moist woods; native of ne. Asia, established occasionally in various parts of the range, usu near habitations. May–Jun. [*Dicentra spectabilis* (L.) Lem.]

**11. MACLEAYA** R. Br. (commem Alexander Macleay, 1767–1848, Scottish naturalist) Plume Poppy. Perennials with yellow sap; flowering stems tall, erect, leafy; infls plume-like terminal panicles of many fls; fls radially symmetric, with receptacle  $\pm$  same diameter as peduncle and its rim unflared; sep 2; pet 0; stamens conspicuous due to lack of pet; fr a capsule. 2, e. Asia, intr N. Am.

**1. Macleaya cordata** (Willd.) R. Br. (heart-shaped) Stems to 2.5 m, leafy; infls 25–38  $\times$  6–15 cm; sep 5–12 mm long, white or cream; fr 12–18 mm long, oblanceoloid, strongly compressed, stipitate. Edges of woods, roadsides, along railroad tracks, other neglected areas; native of e. Asia, established occasionally nearly throughout our range. Jun–Jul.

**12. PAPAVER** L. (ancient name for poppy) Poppy. Herbs with milky or colored sap; infl cymiform; fls radially symmetric, with receptacle  $\pm$  same diameter as peduncle and its rim unflared, large, usu long-peduncled, terminating stem and branches; sep 2; pet usu 4, white or colored, our spp. never yellow, spreading; ovary of 4–many carpels, placentae deeply intruded as partial partitions; stigmas as many as carpels, sessile and radiating on disc terminating ovary; fr opening by small valves just below margin of stigmatic disc; seeds not arillate. Ca. 80, nearly cosmop.

*Papaver glaucum* Boiss. & Hausskn. and *P. hybridum* L. have been collected in our area a very few times in the past, but do not appear to be established.

- 1 Cauline lvs cordate-clasping ..... 5. *P. somniferum*
- 1 Cauline lvs not clasping.
  - 2 Capsules setose ..... 1. *P. argemone*
  - 2 Capsules glabrous.
    - 3 Fls  $\geq 10$  cm wide; pls perennial..... 3. *P. orientale*
    - 3 Fls  $< 10$  cm wide; pls annual or rarely biennial.
      - 4 Peduncles appressed-hispid distally; capsules  $\geq 2\times$  as long as wide..... 2. *P. dubium*
      - 4 Peduncles spreading-hispid distally; capsules  $< 2\times$  as long as wide..... 4. *P. rhoeas*

**1. *Papaver argemone* L.** (ancient name of herb mentioned by Pliny) Sparingly branched, hispid annual, to 5 dm; lvs pinnately divided, not clasping stem; peduncles appressed-hispid; pet to 2.5 cm, dark red, sometimes with basal dark spot; anthers pale blue; fr sparsely setose,  $< 2$  cm, oblong to clavate, distinctly ribbed. Fields, disturbed areas; native of Eur. and sw. Asia, rarely intr in various portions of our range. May–Jul.

**2. *Papaver dubium* L.** (doubtful) Long-headed P. Sparingly branched,  $\pm$  hispid annual, 3–6 dm; lvs pinnately divided, not clasping stem, pinnae toothed to deeply incised; peduncles appressed-hairy above; buds  $< 2$  cm; fls  $< 10$  cm wide; pet 1.5–3(–3.5) cm, red to pink or red-orange, often with basal dark spot; anthers purple; fr glabrous, 1.5–2.2 cm,  $\geq 2\times$  as long as wide, obconic or narrowly obovoid, not strongly ribbed; stigmatic rays 5–9;  $2n=42$ . Usu disturbed sites such as railroads and roadsides; native of Eur., sparingly intr or escaped throughout most of our range. May–Aug.

**3. *Papaver orientale* L.** (eastern) Oriental P. Usu unbranched, hispid perennial, to 1 m; lvs unlobed or pinnatifid, not clasping stem; peduncles appressed-hispid; fls  $\geq 10$  cm wide; pet 4–8 cm, pale orange to orange-red, usu with basal pale spot; anthers violet; fr glabrous, to 2.5 cm, subglobose, obscurely ribbed. Fields, disturbed areas; native of sw. Asia, rarely escaping from cult in various areas in our range. May–Jul.

**4. *Papaver rhoeas* L.** (ancient G name of uncertain application, probably a poppy) Corn P., Flanders P., Shirley P. Sparingly branched, annual (rarely biennial), to 1 m,  $\pm$  hispid; peduncles spreading-hispid throughout; lvs pinnately divided, not clasping stem, pinnae usu lobed or incised; buds 0.5–2 cm; fls  $< 10$  cm wide; pet 1.5–4 cm, variously red, purple, pink, white, or streaked, often with basal dark spot; fr glabrous, ovoid to subglobose, 1–2 cm,  $< 2\times$  as long as wide; stigmatic rays 8–15, typically 10;  $2n=14$ . Usu disturbed sites such as fields, roadsides, railroads; native of Eurasia and n. Afr., widely escaped in our range, but seldom abund. May–Sep.

**5. *Papaver somniferum* L.** (sleep-bringing) Opium P. Sparingly branched, stout annual, to 1 m, glaucous and mainly glabrous except for distally hispid peduncles; lvs sessile, coarsely toothed or shallowly lobed, distal with cordate-clasping base; buds 2–4

cm; pet 3–6 cm, purple or red to white; fr glabrous, 2.5–6+ cm, subglobose or broadly obovoid; stigmatic rays 8–15;  $2n=22$ . Usu moist, disturbed sites such as clearings, roadsides, compost piles; native of Eur. or Asia, modified in cult, often escaped in our range. Jun–Sep.

**13. PSEUDOFUMARIA** Medik. (false fumaria) Rock Fumewort. Perennial herbs with colorless sap; stems leafy; infls terminal, loose racemes; fls bilaterally symmetric with 1 plane of symmetry, upper pet of 2 outer ones spurred at base, yellow or cream-colored; ovary oblong; style deciduous; fr an oblong capsule producing 3–13 seeds, dehiscent. 2, Eur., intr N. Am.

**1. Pseudofumaria lutea** (L.) Borkh. (deep yellow) Stems 13–38 cm tall, leafy; infls 2.9–3.3 × 2.2–3.2 cm; cor 12–15 mm long, yellow; fr 6–9 mm long. Among rocks, in walls and neglected areas; native of Eur., occasionally escaping from gardens, NY and also OR, WA, expected elsewhere due to its propensity to escape. May–frost. [*Corydalis lutea* (L.) DC.]

**14. SANGUINARIA** L. (bloody, ref to the sap) Bloodroot. Perennial herbs, sap red, rhizome stout; lf 1, basal, irregularly lobed; fls radially symmetric, with receptacle ± same diameter as peduncle and its rim unflared, large, erect, at summit of scape; sep 2; pet 8(–16), white, spreading; ovary narrowed above to short style terminated by capitate, 2-lobed stigma; placentae 2; capsule fusiform, crowned by persistent style, dehiscent from base upwards by elongate valves; seeds arillate. 1, N. Am.

**1. Sanguinaria canadensis** L. (Canadian) Lf orbicular in outline, sometimes 2 dm wide at maturity, 3–9-lobed, lobes undulate to coarsely toothed; scape 5–15 cm at anthesis; fls white (pink), 2–5 cm wide; pet 16–34 × 6–12 mm; fr 3–6 cm;  $2n=18$ . Rich woods; NS to MB, s. to FL and e. TX. Apr. Frequent; secure. [*S. canadensis* var. *rotundifolia* (Greene) Fedde]

**15. STYLOPHORUM** Nutt. (*G stylos*, style, and *phoros*, bearing, ref to long style) Wood Poppy, Celandinepoppy. Perennial herbs, sap saffron-colored, rhizome stout; lvs deeply lobed, mostly basal; infls terminal, umbelliform, few-fl'd; fls radially symmetric, with receptacle ± same diameter as peduncle and its rim unflared; sep 2; pet 4, yellow, spreading; ovary ellipsoid, abruptly narrowed to elongate style; stigma 2–4-lobed; placentae 2–4; capsule dehiscent from top downwards by elongate valves; seeds arillate. 3, N. Am. and e. Asia.

**1. Stylophorum diphyllum** (Michx.) Nutt. (2-leaved, appl to stem lvs) Stem 3–5 dm at anthesis; basal lvs several, long-petioled, thin, broadly oblong to ovate, pinnately divided almost or quite to midvein into 5–7 oblong or obovate, obtusely lobed or toothed segments; cauline lvs 1 pair, smaller than basal; buds on erect pedicels 2–5 cm; sep hairy; pet 2–3 cm; style 1 cm; fr ellipsoid or ovoid, bristly, 2–3 cm;  $2n=20$ . Rich, moist woods; native to s. ON and MI, s. to nw. GA, n. AL, and n. AR; occasionally spread from cult outside its native range, as in MD, NY, and PA. Apr–May. Infreq; secure, concern: ON, VA.

## References

- Fernald, M. L.** 1950. Gray's manual of botany, 8th ed. American Book Co., New York.
- Gleason, H. A. & A. Cronquist.** 1991. Manual of vascular plants of northeastern United States and adjacent Canada, 2nd ed. The New York Botanical Garden, Bronx.  
<http://dx.doi.org/10.21135/893273651.001>
- Haines, A.** 2009. Personal communication to Robert Naczi informing him about collection history of *Dicentra formosa* in New England, 24 March.
- Holmgren, N. H.** 1998. Illustrated companion to Gleason and Cronquist's manual: illustrations of the vascular plants of northeastern United States and adjacent Canada. The New York Botanical Garden, Bronx.  
<http://dx.doi.org/10.21135/893273996.001>
- Hoot, S. B., K. M. Wefferling & J. A. Wulff.** 2015. Phylogeny and character evolution of Papaveraceae s.l. (Ranunculales). *Syst. Bot.* 40: 474–488.  
<http://dx.doi.org/10.1600/036364415x688718>
- Judd, W. S., C. S. Campbell, E. A. Kellogg, P. F. Stevens & M. J. Donoghue.** 2016. Plant systematics: a phylogenetic approach, 4th ed. Sinauer Associates, Sunderland, MA.
- Kadereit, J. W.** 1993. Papaveraceae. Pp. 494–506 in K. Kubitzki, J. G. Rohwer & V. Bittrich, eds. The families and genera of vascular plants, vol. 2: flowering plants, dicotyledons—magnoliid, hamamelid, and caryophyllid families. Springer-Verlag, Berlin.
- Kiger, R. W.** 1997. Papaveraceae. Pp. 300–339 in Flora of North America Editorial Committee, eds. Flora of North America north of Mexico, vol 3: Magnoliophyta: Magnoliidae and Hamamelidae. Oxford Univ. Press, New York.
- Lidén, M.** 1993. Fumariaceae. Pp. 310–318 in K. Kubitzki, J. G. Rohwer & V. Bittrich, eds. The families and genera of vascular plants, vol. 2: flowering plants, dicotyledons—magnoliid, hamamelid, and caryophyllid families. Springer-Verlag, Berlin.
- , **T. Fukuhara, J. Rylander & B. Oxelman.** 1997. Phylogeny and classification of Fumariaceae, with emphasis on *Dicentra* s.l., based on the plastid gene *rps16* intron. *Pl. Syst. Evol.* 206: 411–420.  
<http://dx.doi.org/10.1007/bf00987960>

- Pérez-Gutiérrez, M. A., A. T. Romero-García, M. C. Fernández, G. Blanca, M. J. Salinas-Bonillo & V. N. Suárez-Santiago.** 2015. Evolutionary history of fumitories (subfamily Funarioideae, Papaveraceae): an old story shaped by the main geological and climatic events in the Northern Hemisphere. *Molec. Phylogen. Evol.* 88: 75-92.  
<http://dx.doi.org/10.1016/j.ympev.2015.03.026>
- Sauquet, H., L. Carrive, N. Poullain, J. Sannier, C. Damerval & S. Nadot.** 2015. Zygomorphy evolved from disymmetry in Fumarioideae (Papaveraceae, Ranunculales): new evidence from an expanded molecular phylogenetic framework. *Ann. Bot.* 115: 895–914.  
<http://dx.doi.org/10.1093/aob/mcv020>
- Stern, K. R.** 1961. Revision of *Dicentra* (Fumariaceae). *Brittonia* 13: 1–57.  
<http://dx.doi.org/10.2307/2805282>
- . 1997. Fumariaceae. Pp. 340–357 in *Flora of North America* Editorial Committee, eds. *Flora of North America north of Mexico*, vol 3: Magnoliophyta: Magnoliidae and Hamamelidae. Oxford Univ. Press, New York.
- Stevens, P. F.** 2016. Angiosperm phylogeny website, version 13. Missouri Botanical Garden, <http://www.mobot.org/MOBOT/research/APweb/>. Accessed 1 April 2016.
- Tebbutt, M., M. Lidén & H. Zetterlund.** 2008. Bleeding hearts, *Corydalis*, and their relatives. Timber Press, Portland, OR.
- Wang, W., A. Lu, Y. Ren, M. E. Endress & Z. Chen.** 2009. Phylogeny and classification of Ranunculales: evidence from four molecular loci and morphological data. *Perspect. Pl. Ecol., Evol. Syst.* 11: 81–110.  
<http://dx.doi.org/10.1016/j.ppees.2009.01.001>

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