

the island, it differs from the type in having no spots); Selby & Craig 1890:13 (#534 & 535 *Phlox maculata* L. var. *candida* Michx.); Cooperrider 1995:344 (illus. p. 345).

HERBARIUM RECORDS: 1833—Worthington, *J. Paddock Collection* (ILL); 1837—Cols., *J. Paddock Collection*, *I. G. Jones* (ILL); 8 Aug 1890—Taylor's Woods, Cols., *Selby* (OS, WOOS); 7 Jul 1892—Worthington, *Bogue*; 1 Aug 1892—Alum Creek Station, near Cols., *E. M. Wilcox*; 14 Aug 1892—near Cols., *E. M. Wilcox*.

2. POLEMONIUM L. Greek Valerian, Jacob's Ladder

Tufted, erect or diffuse, glabrous or pubescent; leaves pinnately compound, basal long-petioled, leaflets entire, lanceolate or oblong; flowers pediceled; corolla blue, 10-15 mm long, about twice as long as calyx, 5-lobed; stamens inserted on corolla tube; capsule ovoid.

1. *Polemonium reptans* L.

Jacob's-ladder, Greek Valerian

Two varieties are recognized:

var. *reptans*

Leaves pinnately compound, 7-17 broad leaflets; inflorescence short spiculate-pubescent; stems mostly glabrous; corolla blue-purple.

REFERENCES: Riddell 1834:156 (dense and shady woods); Sullivant 1840:28; Craig 1890:90 (sparingly along the fence from the seed barn to the river, 18 Apr 1882, 5 May 1883, 5 May 1884, 12 May 1885, 23 Apr 1887, 20 Apr 1889); Selby & Craig 1890:13; Cooperrider 1995:338 (illus. p. 342).

HERBARIUM RECORDS: 12 Apr 1882—Olentangy R., *W. Green*; Spring 1889—Cols., *Craig*; 20 May 1892—near Cols., *E. M. Wilcox*; Jun 1892—Cols., *Addison* [maybe "Addisas"]; May 1895—Georgesville, *Osburn*; 5 May 1896—Worthington, *M. Wright*; 30 Apr 1899—Blendon, *Helfrich*; 7 May 1901—N Cols., *Mead*; 2 May 1911—Westerville, moist woods, *Hanawalt*; 22 May 1923—Big Walnut, rocky hillsides, *Betts*; 10 May 1924—Westerville, creek bottom, *Lehman*; 21 May 1924—Minerva Park, *Boyer*; 23 May 1924—Big Walnut, Westerville, woodland, *Bauer*; 14 Apr 1938—Cols., *S. Humphrey*; 25 Apr 1970—corner of Scioto River Rd. & Leeds, damp wooded hillside, *Boone 30*; 5 May 1977—Ohio School for the Deaf, land lab off Morse Rd., upland rich shady woods, *Tyrrell 55*; 29 Apr 1982—Highbanks Metro Park (Franklin & Delaware Cos.), *G. Moore 233*; 10 May 1982—Blendon Woods, *Owens*; 5 May 1985—Sawmill Rd., 1 mi. S of Rt. 161, swampy woods, *Rutter 158*; 12 May 1986—Highbanks Metro Park (Delaware Co.), woods, *Watts 299*; 13 May 1989—W side of Big Darby Creek, ¼ mi. S of Rt. 665, mesic wooded slope, Pleasant Twp., Harrisburg Quad., *McCormac 563*.

†var. *villosum* E.L. Braun

Braun's Jacob's-ladder

Similar to typical *Polemonium reptans* except inflorescence and stems villous pubescent.

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [date?—Cols., OSU, *Craig*; Spring 1889—Cols., *Craig*; May 1889—Franklin Co., *Selby*; 20 May 1892—near Cols., *E. M. Wilcox*; 21 Apr 1927—near Alum Creek, *S. Miller*; 10 Jun 1990—McOwen Rd., woody swamp area, just W of jct. with Dixon Rd., Jefferson Twp., *Lowden 4379*.

NOTE: Not mentioned for Franklin Co. by Cooperrider 1995:339.

HYDROPHYLLACEAE, Waterleaf Family

Herbs, usually pubescent; leaves entire, lobed, or compound, alternate; flowers hypogynous, bisporangiate, solitary or in cymes; sepals 5, united at base or separate; corolla regular, of 5 petals united to middle or a little above, usually appendaged in the tube; stamens 5, inserted on corolla-tube; carpels 2, united; styles 2 or partly united; ovary 1-loculed; placentae 2, large, sometimes nearly meeting, ovary then appearing 2-loculed; fruit a capsule.

a Style bifid to about middle or below; leaves pinnately lobed; corolla campanulate to rotate; flowers in helicoid cymes which become elongate and straight, racemelike. 1. PHACELIA

a' Style bifid only at tip; leaves pinnately or palmately lobed; corolla tubular to campanulate; flower clusters several times forked, often compact, not elongate. 2. HYDROPHYLLUM

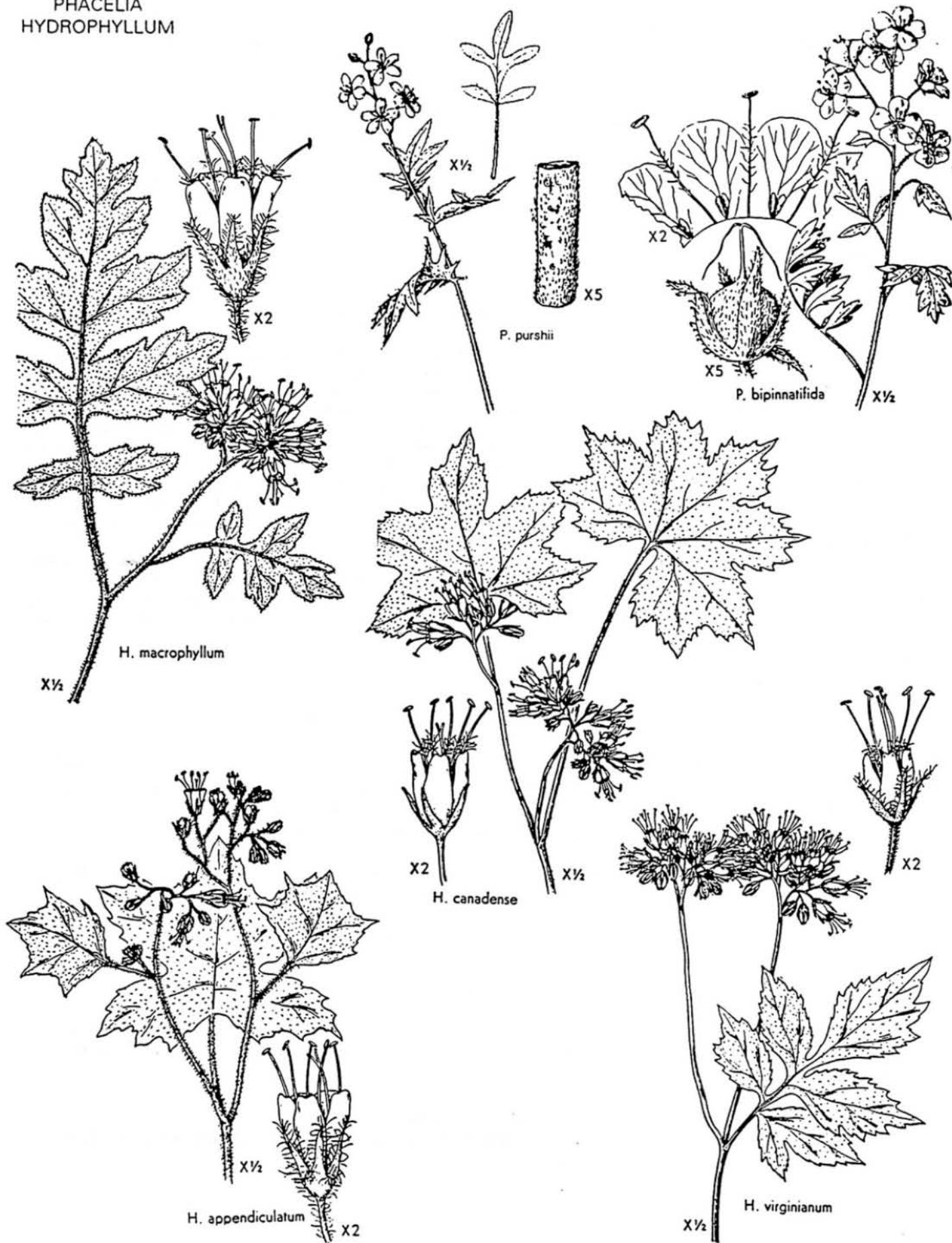
1. PHACELIA Juss. Phacelia

Leaves pinnately lobed to pinnately compound; helicoid cymes lengthening and straightening after anthesis; corolla broadly campanulate, blue or white, 0.5 to somewhat more than 1 cm long, lobes sometimes fringed; stamens more or less exsert.

a Corolla-lobes fringed; filaments villous, about as long as corolla. 1. *P. purshii*

a' Corolla-lobes not fringed, sometimes minutely toothed, tube with conspicuous scales; filaments villous, long exsert; plants stipitate-glandular. 2. *P. bipinnatifida*

PHACELIA
HYDROPHYLLUM



1. *Phacelia purshii* Buckley

Miami-mist

Corolla lobes fringed; filaments villous; upper cauline leaves sessile and usually clasping.

REFERENCES: Riddell 1834:157 (*Phacelia fimbriata*, meadows); Sullivant 1840:34 (*Phacelia fimbriata* Michx.); Craig 1890:91 (abundant NW of the garden along the fence, and near the seed barn, where it is spreading rapidly, 23 May 1882, 4 Jun 1883, 20 May 1884, 8 May 1887, 3 Jun 1888); Selby & Craig 1890:13; Cooperrider 1995:348 (illus. p. 350).

HERBARIUM RECORDS: 1838—Worthington, *J. Paddock Collection* (ILL); 1840—Cols., *Sullivant*; 30 May 1880—OSU Garden, *Selby*; 6 Jun 1882—OSU farm, Cols., *Devol*; May 1888—Cols., *Craig*; Jun & 6 Jun 1888—Cols., *Craig*; 24 May 1891—Cols., *Werner* (CLM); 24 May 1892—Cols., *Detmers*; 8 Jun 1892—OSU campus, near Cols., *E. M. Wilcox*; 29 May 1893—Alum Creek Station, Cols., *Kerr*; 8 Jun 1894—OSU campus, near Cols., *E. M. Wilcox*; 22 May 1895—N Cols., *Osburn*; 28 May 1895—Cols. Rd., *Olds* (DEN); 27 May 1896—Clintonville, *M. Wright*; 15 May 1899—Olentangy Park, Cols., *Helfrich*; May 1934—Franklin Co., *Weishaupt*; 20 May 1982—Pickerington Marsh, *Owens*; 31 May 1990—Pickerington Pond, Bowen Rd., Madison Twp., *Lowden 4365*; 12 May 1991—E bank of Big Darby Creek, S of Alkire Rd., RR underpass, Battelle Darby Creek Metro Park, Pleasant Twp., *Lowden 4627*.

2. †*Phacelia bipinnatifida* Michx.

Fern-leaved Scorpion-weed

REFERENCES: Riddell 1834:157 (dense and shady woods); Sullivant 1840:34; Selby & Craig 1890:13.

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Cooperrider 1995:351 (illus. p. 350).

2. HYDROPHYLLUM L. Waterleaf

Leaves rather large, palmately lobed or pinnately lobed or divided, petioled; flowers in terminal and lateral cymes; corolla tubular or campanulate, white, blue, or blue-purple; stamens alternating with 5 linear appendages in corolla-tube, exsert, filaments usually villous; capsule globose, pubescent; placentae greatly dilated, enclosing ovules.

- a Cauline blades longer than wide, pinnately divided nearly to midvein; stamens long exsert.
- b Plant rough-hairy; peduncle usually shorter than petiole; leaf-segments blunt. 1. *H. macrophyllum*
- b' Plant glabrous or sparingly hairy; peduncle usually longer than petiole; leaf-segments acute. 2. *H. virginianum*
- a' Cauline blades mostly as wide as long, palmately lobed or shallowly pinnately lobed.
- c Calyx without reflexed appendages but sometimes with minute teeth in sinuses; basal leaves sometimes with 2 or 3 small leaflets on petiole below the large rounded blade. 3. *H. canadense*
- c' Calyx with reflexed appendages in sinuses; basal leaves pinnately divided; stamens only slightly exsert; plant hairy. 4. *H. appendiculatum*

1. *Hydrophyllum macrophyllum* Nutt.

Large-leaved Waterleaf

Stems hispid; cauline leaves pinnately lobed, apices of lobes broadly acute or obtuse; calyx coarsely hispid and with short pubescence; corolla greenish to white; stamens well-exserted.

REFERENCES: Sullivant 1840:34 (*Hydrophyllum hispidum* Riddell); Craig 1890:90 (sparingly along the river, S of the brook and on the bank NE of the island, 4 Jun 1884, 2 Jun 1885, 26 May 1887); Selby & Craig 1890:13 (*Hydrophyllum hispidum*, Riddell?); Cooperrider 1995:347 (illus. p. 349).
HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 8 Jun 1882—Central Insane Asylum, Cols., *Devol*; Jun 1884—near Cols., *Herbarium [of] H. Smith* (CINC); Jun 1888—Neil's Woods, Cols., *Selby*; 1890—Cols., *Selby*; May 1891—Cols., *Werner* (CLM); 20 Jun 1892—"near villa," near Cols., *E. M. Wilcox*; 19 May 1896—W Cols., *M. Wright*; 24 May 1922—Westerville, Big Walnut, creek bottom, *Camp*; 26 May 1922—Westerville, *Drury*; 25 May 1982—Blendon Woods, *Owens*; 22 May 1986—OSU woodlot, 500 yards W of intersection Kenny Rd. & Ackerman Rd., *Hollander 44*; 25 May 1986—W campus of OSU, far W side of woodlot, *R. Burnes 42*; 23 May 1989—Overbrook Drive Ravine, E of N. High St., S of Cooke Rd., Cols., Clinton Twp., *Lowden 4082*; 16 May 1991—Overbrook Drive Ravine, E of N. High St., Clinton Twp., *Lowden 4632*.

NOTE: The name *Hydrophyllum hispidum* Riddell might also apply to *Hydrophyllum appendiculatum*.

2. *Hydrophyllum virginianum* L.

Virginia Waterleaf

Cauline leaves pinnately divided, lobes acute to acuminate, lowest sinus extending to the midrib; calyx sparsely hispid; corolla white, pink or purple; stems sparsely pubescent to glabrous. Syn.: *H. virginicum* L.

REFERENCES: Riddell 1834:157 (*Hydrophyllum virginicum*, open woods); Sullivant 1840:34; Craig 1890:90 (rare, found only in the woods NE of the island, 23 May 1882, 31 May 1884, 14 May 1887; occurs also on the Scioto near Hayden's Falls); Selby & Craig 1890:13; Cooperrider 1995:347 (illus. p. 349).

HERBARIUM RECORDS: May 1890—Neil's Run, Cols. *Selby* (OS, WOOS); 21 May 1892—Alum Creek, *Werner*; 21 May 1892—Cols., *Werner* (KE); 10 Jun 1892—near Cols., *E. M. Wilcox*; 20 May 1893—near Cols., *E. M. Wilcox*; 24 May 1963—W bank of Olentangy R., just N of Dodridge Ave. Dam, *Cusick*; 14 May 1970—University woodlot at corner of Kenny & Ackerman, *Boone 146*; 10 May 1977—wet woods on Olentangy R. floodplain, N of Dodridge bridge, Cols., *W. Carr 186*; 16 May 1991—Overbrook Drive Ravine, E of N. High St., Clinton Twp., *Lowden 4633*; 29 May 1993—W bank of Scioto R., ravine gorge N of Tuttle Rd. off Dublin Rd., Washington Twp., *Lowden 5049*.

3. *Hydrophyllum canadense* L.

Broad-leaved Waterleaf

Cauline leaves palmately lobed; stems sparsely hispid; calyx glabrous or with a few coarse hairs; corolla white; stamens well-exserted; inflorescence concealed under the broad leaf blades.

REFERENCES: Riddell 1834:157 (meadows); Sullivant 1840:34 (*Hydrophyllum canadense* Willd.); Craig 1890:90 (a few specimens in the woods, 20 May 1883; it is a rare plant and I know of no other locality near Cols.); Selby & Craig 1890:13; Cooperrider 1995:348 (illus. p. 349).

HERBARIUM RECORDS: 1890—Worthington Woods, Selby; 25 May 1991—path along E bank of Olentangy R., between Whetstone & Northmoor Parks, Clinton Twp., Lowden 4637.

4. *Hydrophyllum appendiculatum* Michx.

Appendaged Waterleaf

Cauline blades palmately lobed; basal leaves pinnately divided; calyx with reflexed appendages in sinuses; stems and calyx conspicuously hispid; corolla lavender to purple; stamens usually slightly exserted.

REFERENCES: Riddell 1834:157 (dense and shady woods); Craig 1890:91 (abundant along the river S of the brook, 15 May 1882, 15 May 1884, 26 May 1885, 4 May 1889); Selby & Craig 1890:13; Selby 1893:128 (Plate II); Cooperrider 1995:348 (illus. p. 350).

HERBARIUM RECORDS: 1840—Cols., Sullivant; 23 May 1882—Olentangy R., Cols., W. Green; May 1888—Cols., Craig; May 1889—Insane Asylum Grounds, Cols., Selby; 25 Jun & 13 Jul 1891—Cols., Werner (CLM); 18 May 1892—Indianola Place, Cols., Selby; Jun 1892—Cols., Selby (CLM); 25 May 1893—Indianola Place, Cols., Selby; 12 Jun 1893—near Cols., E. M. Wilcox; 22 May 1895—Olentangy R., Osburn; 19 May 1896—W Cols., M. Wright; Spring 1898—Cols., J. H. Schaffner; 29 May 1922—Westerville, creek bottom, Camp; 3 Jun 1923—Westerville, moist woods, F. Vance; 21 May 1924—Westerville, along Alum Creek, M. Long; 19 May 1967—rocky slope ¼ mi. S of Dublin and on floodplain on E bank of the Scioto R., Stuckey 3777; 19 May 1969—Park of Roses, Cols., Wiley 6; 12 May 1973—Dublin Quarry, approx. 1 mi. S. of Dublin on E side of Scioto R., Bourdo & Roberts 3441; 17 May 1973—Dublin Quarry, Roberts 3451; 16 April 1974—Park of Roses, 3875 N. High, Krock; 25 Apr 1977—Hayden Run, W side of Scioto R., N of Cols., W. Carr 125; 15 May 1977—¼ mi. S of Trabue Rd. along Scioto R., Fazenbaker; 25 May 1982—Olentangy R., Clinton Park, Cols., Grieve 50; 25 May 1982—between Broadway & Henderson Rd. along Olentangy R., D. Taylor 42; 18 May 1986—near intersection of High St. & Blenheim Rd., Taylor-Lehman 54; 24 May 1986—Worthington, E side of Olentangy R., about 200 m S of Rt. 161, Hollander 54; 25 May 1986—ravine at intersection of Riverview Park Dr. & Rustic Bridge Dr., Cols., R. Burnes 38; 20 May 1987—Highbanks Metro Park (Delaware Co.), Higgins; 23 May 1989—Overbrook Drive Ravine, E of N. High St., Columbus, Clinton Twp., Lowden 4075; 31 May 1990—S side of Lehman Rd. just E of Gender Rd. along Georges Creek, Madison Twp., Lowden 4367; 25 May 1991—path along E bank of Olentangy R., between Whetstone & Northmoor Parks, Clinton Twp., Lowden 4634.

NOTE: The two specimens collected at Indianola Place, Cols., and that dated Jun 1892 by Aug. D. Selby have calyx not appendaged (Selby, Aug. D., J. Cols. Hort. Soc. 1893:128-130, pl. II).

BORAGINACEAE, Borage Family

Herbs, usually rough-pubescent, rarely glabrous; leaves alternate, simple, usually entire; flowers hypogynous, perfect, in cymes which are usually helicoid; calyx of 5 united sepals, lobed, sometimes irregular; corolla tubular, campanulate, salverform, or rotate, 5-lobed, usually regular, tube often bearing, and sometimes closed by, appendages of scales, folds, or crests; stamens 5, inserted on corolla-tube, alternate with lobes; hypogynous disk sometimes present; carpels 2, united; style 1, terminal or arising from base of carpels; stigma capitate or bilobed; ovary 2-loculed at first, 4-loculed at maturity, a false partition in each carpel; 2 ovules in each carpel, 1 in each of the 4 locules; fruit separating into four 1-seeded nutlets or rarely into two 2-seeded nutlets.

The garden escape, *Brunnera macrophylla* I.M. Johnst., is hispid; basal leaves conspicuously veined, long-petioled, ovate, cordate or reniform at base; lower stem leaves similar but smaller and with shorter petioles, upper stem leaves with short petiole or sessile base; flowers small, reaching ¼ inch in width, light blue, long-pedicelled in paniced racemes; nutlets wrinkled, base surrounded by an annular rim (19 May 1970—Mirror Lake Hollow, S side of lake, Boone 159; 16 May 1981—OSU Chadwick Arboretum, Ag. College, Cols., Gardner; 15 May 1986—OSU Campus, S end of Mirror Lake, Cols., Hollander 033; 2 Jun 1986—behind Rathskeller on OSU campus, along sidewalk of Mirror Lake, Benkowski 77; 21 Apr 1991—at jct. of Rathbone Ave. & Milton Ave., just S of Graceland Shopping Center, Cols., Clinton Twp., Lowden 4595). Schaffner (1932) reported *Amsinckia intermedia* Fisch. & Mey. (Coast Fiddle-neck) for Franklin Co.

a Corolla almost unlobed; plants glabrous; nutlets laterally attached. 1. MERTENSIA

a' Corolla lobed; plants pubescent.

b Stamens much exserted; corolla zygomorphic. 8. ECHIUM

b' Stamens included or little exserted; corolla regular.

c Nutlets attached by their sides, bearing barbed prickles (glochidia); corolla funnellform to salverform.

d Inflorescence mostly without bracts; nutlets attached near their summit, bases spreading or divergent.

5. CYNOGLOSSUM