

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

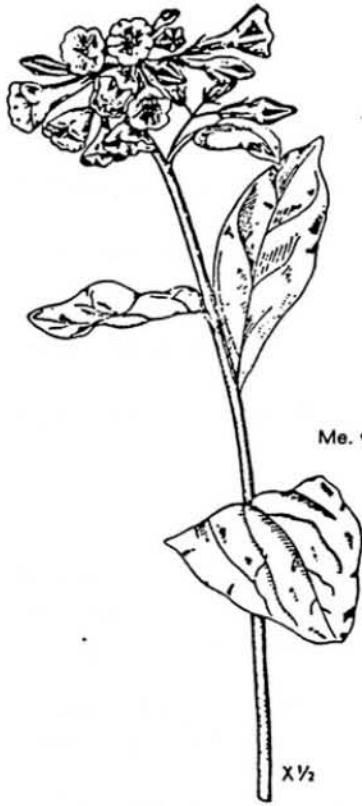
b' Stamens included or little exserted; corolla regular.

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

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

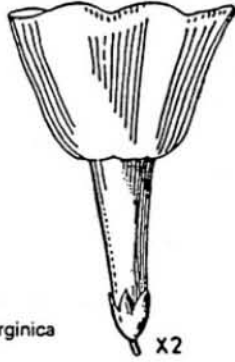
### 5. CYNOGLOSSUM

MERTENSIA  
MYOSOTIS  
HACKELIA  
LAPPULA



*Me. virginica*

X 1/2

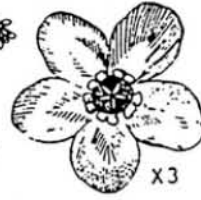


X 2



*My. scorpioides*

X 1/2



X 3



X 3



X 3



*My. macrosperma*



X 3

*My. verna*



X 1/2



X 5

*H. virginiana*



X 5



X 3



*L. squarrosa*

X 1/2



X 5



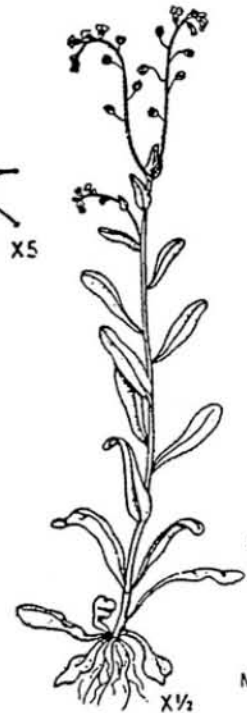
X 5



X 3



X 5



X 3

*My. arvensis*

X 1/2

- d' Inflorescence with bracts, bracts sometimes between the pedicels; nutlets erect, attached by middle of, or along whole length of, inner margin.
- e Nutlets attached along most of inner margin; glochidia in 2 marginal rows on external face of nutlet; fruiting pedicels erect; bracts subtending pedicels; blades linear to lanceolate. **4. LAPPULA**
- e' Nutlets attached by center of inner face, scar of attachment oval; glochidia all over external face of nutlet; fruiting pedicels reflexed; bracts often between pedicels; blades mostly broader than above. **3. HACKELIA**
- c' Nutlets attached by their bases, smooth or rough, but without barbed prickles.
- f Flowers not subtended by bracts.
  - g Plants large and coarse; blades large, acute or acuminate at apex; corolla tubular-campanulate; nutlet with toothed ring at base. **9. SYMPHYTUM**
  - g' Plants small; blades usually obtuse at apex; corolla salverform or broadly funnelform; nutlet without ring at base, flattened. **2. MYOSOTIS**
- f' Flowers subtended by bracts, bracts often leaflike.
  - h Corolla dull white, tubular, teeth or shallow lobes acute and erect; style conspicuously exsert. **7. ONOSMODIUM**
  - h' Corolla white, yellow, or orange, campanulate or salverform; style not or little exsert. **6. LITHOSPERMUM**

### 1. MERTENSIA Roth Bluebell

Glabrous; blades elliptic, obovate, or somewhat narrower, basal with long petioles, upper often sessile; calyx much shorter than corolla-tube; corolla not or scarcely crested, pink when young changing to lavender-blue, rarely white, trumpet-shaped, tube 1-2 cm long, limb shorter and almost entire; style elongate; stigma minute; nutlets rough.

#### 1. *Mertensia virginica* (L.) Pers. ex Link forma *virginica* Lungwort, Smooth Lungwort, Bluebell, Virginia Bluebells

Stems glabrous, fleshy; flowers showy; corolla exceeding calyx, pink to blue, 18-25 mm long, lobes slightly spreading.

REFERENCES: Riddell 1834:157 (*Pulmonaria virginica*, calcareous ravines); Sullivant 1840:35 (*Pulmonaria virginica* L.); Craig 1890:91 (it is still found on the island, but is gradually dying out, 14 Apr 1882, 5 May 1883, 20 Apr 1884, 3 May 1885, 19 Apr 1886, 17 Apr 1887, 26 Apr 1888, 20 Apr 1889); Selby & Craig 1890:13; Cooperrider 1995:366 (illus. p. 368).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 8 May 1882—Olentangy R., *W. Green*; Apr 1889—Cols., coll.?.; 1890—Franklin Co., *Selby*; May 1890—Scioto R., Cols., *Selby*; 1892—Cols., *Werner*; 17 Apr & 18 May 1892—Hayden Falls, Scioto R., near Cols., *E. M. Wilcox*; May 1893—near Cols., *E. M. Wilcox*; 30 Apr 1899—Blendon, *Helfrich*; 27 Apr 1900—OSU Farm, Cols., *J. H. Schaffner*; 5 Apr 1923—Westerville, near stream, *Flick*; 25 Apr 1925—Big Walnut Creek, Westerville, *Camp*; 6 May 1936—E of Gahanna, *Waller*; 4 May 1968—W floodplain bank of Alum Creek, N side of Rt. 161 at YWCA Camp, approx. 5 mi. E of Worthington, *Stuckey 6419*; 26 Apr 1970—Clintonville, along stream in Whetstone Park, *W. Owen 097*; 14 Apr 1977—Worthington, woodlot off High St. ½ mi. N of Cols.-Worthington City Limit, *Ficek 1*; 13 May 1980—woods NW bank of Big Walnut Creek, ¼ mi. S of bridge at Winchester Pike, Madison Twp., SE ¼ SE Cols. Quad., *Hanf & W. Carr 2740*; 29 Apr 1983—Blendon Woods, *Owens*; 5 Apr 1986—Tuttle Park, wooded hillside close to W. Dodridge St., Cols., *Cooperband 9*; 21 Apr 1986—Highbanks Metro Park (Delaware Co.), floodplain, *Watts 289* (OS, OWU); 13 Apr 1988—forested city park on Bromley in Worthington, 2 mi. S of Rt. 161, 1/8 mi. E of Rt. 23, banks of Rush Creek, *M. Hoffman 14*; 16 Apr 1988—2 mi. N of Rt. 161 & Rt. 33, floodplain of stream, *Kelly 2*; 8 May 1989—Overbrook Drive Ravine, between High St. & Cooke Rd., Clinton Twp., *Lowden 4017*; 11 Apr 1991—Antrim Park along Olentangy R., Sharon Twp., *Lowden 4581*; 12 Apr 1992—Whetstone Park just W of High St., Cols., *Condit*.

### 2. MYOSOTIS L. Forget-me-not

Low herbs with sessile lanceolate or oblanceolate leaves; flowers very small, not bracted; corolla salverform or funnelform, appendaged in the throat; stamens included in corolla tube, filaments short; nutlets flattened.

- a Calyx-hairs all straight, appressed. **1. M. scorpioides**
- a' Calyx-hairs, or some of them, spreading and hooked or glandular.
  - b Calyx-lobes unequal; corolla white, 1-2 mm wide.
    - c Pedicels erect or nearly so. **2. M. verna**
    - c' Pedicels ascending or spreading. **3. M. macrosperma**
  - b' Calyx-lobes equal; corolla blue or white, 2-3 mm wide, rarely more. **4. M. arvensis**

1. \**Myosotis scorpioides* L.

True Forget-me-not

Naturalized (native of Europe)

Stem stoloniferous; inflorescence without bracts; flowers with pedicels; corolla blue with yellow center, 5-9 mm wide, lobes spreading; calyx shorter than corolla tube, with short straight appressed hairs, lobes shorter than calyx tube; style equaling or overtopping nutlets; nutlets smooth.

REFERENCES: Selby 1891a:111a (*Myosotis palustris* With., introduced); Cooperrider 1995:362 (illus. p. 363).

HERBARIUM RECORDS: 30 Jun 1963—OSU, E bank of Olentangy R., directly W of French Field House, marshy ground, *Cusick*; 14 May 1977—swamp along W side of Olentangy R., just N of Lane Ave. bridge, Cols., *W. Carr* 195; 5 Aug 1977—pipeline construction area along Scioto R., ½ mi. S of Dublin on Rt. 745, *W. Carr* 636; 14 May 1986—OSU campus, near Drake Union, near bank of Olentangy R., *Yang* 157; 24 May 1990—Quarry Place on E bank of the Scioto R., just S of Rt. 161 on Rt. 33, Perry Twp., *Lowden* 4342.

2. *Myosotis verna* Nutt.

Spring Forget-me-not

Calyx pubescence consisting of spreading and hooked hairs; lobes of calyx slightly unequal, 2 lobes longer than other 3; fruiting pedicels not widely separated, the lowest less than 2 cm apart, the others less than 1 cm apart; corolla white; nutlets smooth, shiny.

REFERENCES: Selby 1891a:111a; Cooperrider 1995:362 (illus. p. 363).

HERBARIUM RECORDS: [date?]-Cols., *Selby*; 1892-Cols., *Fischer* (WOOS); 7 May 1892—Georgesville, *Werner* (CLM, OS); 31 May 1922—Jackson Twp., *J. H. Schaffner*; 14 Jun 1931—Westerville & 2 mi. SW of Westerville, *Hicks*; 22 May 1980—weedy area along N/S RR spurs, E of N. 4th St. & 1 blk. N of Mt. Vernon Ave., NW ¼ SE Cols. Quad., *W. Carr* 2789 (KE, OS); 13 Jun 1990—open field along W side of Waggoner Rd., 1 mi. S of Conrail & B&O RR track, Jefferson Twp., *Lowden* 4411.

3. †*Myosotis macrosperma* Engelm.

Bristly Scorpion-grass

Similar to *Myosotis verna* Nutt., except the fruiting pedicels are widely separated, the lowest more than 2 cm apart, the upper ones more than 1 cm apart.

REFERENCE: Roberts and Cooperrider 1982:64.

HERBARIUM RECORDS: 25 May 1891—Cols., *Fischer* (OS, WOOS); 28 May 1892—Central College, *W. Kellerman*; 29 May 1892—Central College, Cols., *Selby*; 14 May 1992—N of deadend of Harrisburg Georgesville Rd., Battelle Darby Creek Metro Park, Pleasant Twp., *Lowden* 4952.

NOTE: Not mapped for Franklin Co. by Cooperrider 1995:364 (illus. p. 363).

4. \**Myosotis arvensis* (L.) Hill

Field Forget-me-not, Field Scorpion-grass

Naturalized (native of Eurasia)

Inflorescences without bracts; calyx tube with spreading hairs; corolla blue to white, lobes spreading; pedicels in fruit equaling or longer than calyx; style shorter than nutlets; nutlets smooth, shiny.

REFERENCES: Sullivant 1840:35; Selby & Craig 1890:13; Selby 1891a:111a (#552 Re-collected); Cooperrider 1995:364 (illus. p. 365).

HERBARIUM RECORDS: 1892?—Cols., *H. Hoffman*; 4 Aug 1985—Piedmont Rd. & Torrence Rd., E of N. High St., garden weed, NW Cols. Quad., *Cusick* 24590; 1 Oct 1986—Piedmont Rd., E of N. High St., weed in lawns & gardens, NW Cols. Quad., *Cusick* 26046.

### 3. HACKELIA Opiz Stickseed

Basal blades round-ovate, sometimes cordate, slender-petioled; cauline blades ovate or narrower, tapering to tip and base, sessile; flowers short-pedicel, in small-bracted helicoid cymes; corolla pale blue or white, about 2 mm wide, appendaged; each nutlet one fourth of a sphere, convex outer side verrucose and covered with barbed prickles, inner angle bearing an oval scar of attachment at about middle; pedicels reflexed in fruit.

1. *Hackelia virginiana* (L.) I.M. Johnst.

Common Stickseed

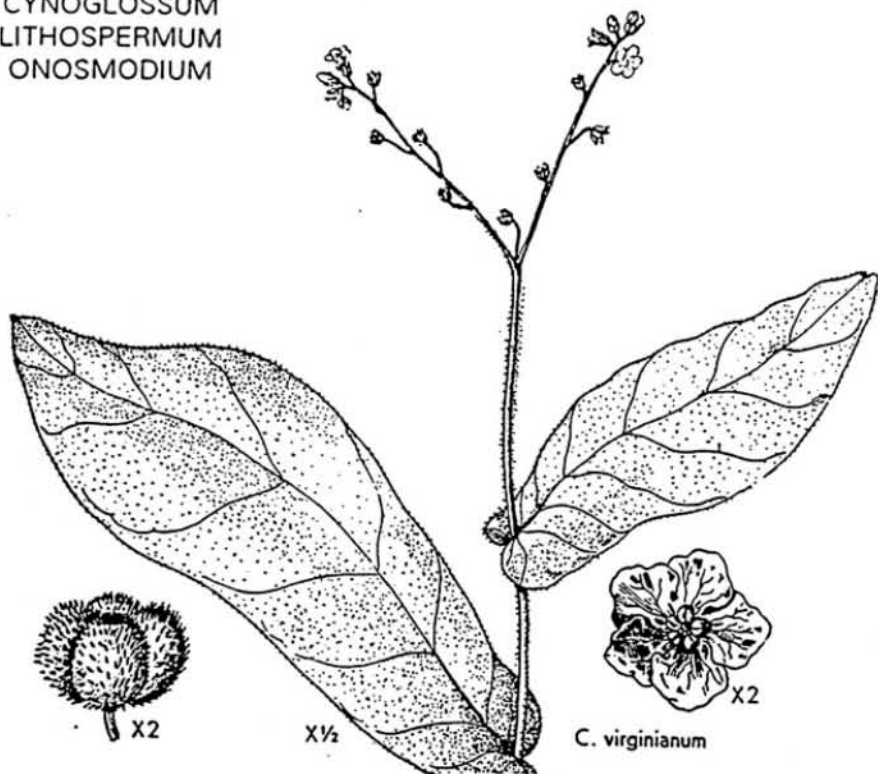
Stems smooth hispid; basal leaf blades round-ovate, upper blades with short petioles, not clasping; corolla white or pale blue, approx. 2 mm wide, lobes spreading; nutlets covered with apically barbed bristles, equal in length.

REFERENCES: Riddell 1834:157 (*Rochelia virginiana*, open woods); Sullivant 1840:35 (*Echinosperrum virginicum* Lehm.); Craig 1890:91 (*Echinosperrum virginicum* Lehm., Beggar's Lice, in the woods, not common, usually in the E part, near the fence, also on the island, 10 Aug 1882); Selby & Craig 1890:13 (*Echinosperrum virginicum* Lehm.); Cooperrider 1995:367 (illus. p. 368).

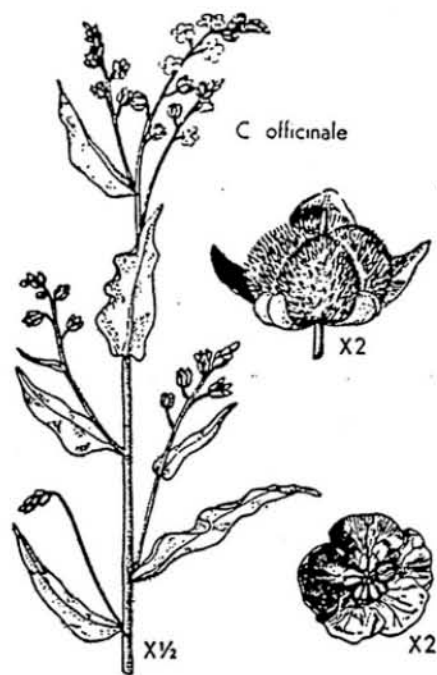
HERBARIUM RECORDS: 11 Aug 1882—Neils Run, Cols., *W. Green*; 20 Jul 1890—Wyandot Grove, *Selby*; 8 Aug 1890—Headley's Woods, *Selby*; 9 Aug 1890—Cols., *Werner* (CLM); 23 Aug 1892—Cols., *Bogue*; 28 Jul 1979—limestone quarry, E side Scioto R., 1 mi. S of Dublin on Rt. 33, *W. Carr* 1761 (KE, OS); 16 Jul 1990—Whetstone Park of Roses, path below the Blenheim Rd. bus turn around, Clinton Twp., *Lowden* 4447; 22 Aug 1990—Hayden Falls off Hayden Run Rd., W side of Scioto R., Norwich Twp., *Lowden* 4557; 31 Aug 1992—S end of Cleveland Ave. at I-670, just S of First Ave., occasional in gravelly waste areas along abandoned RR tracks, Franklin Twp., SE Cols. Quad., *McCormac* 4861.

### 4. LAPPULA Moench Stickseed

CYNOGLOSSUM  
LITHOSPERMUM  
ONOSMODIUM



*C. virginianum*



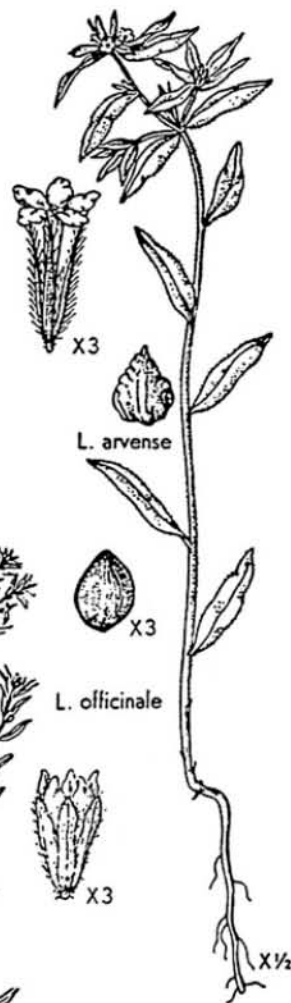
*C. officinale*



*O. molle*



*L. canescens*



*L. arvense*

*L. officinale*

X1/2

Leaves oblanceolate or narrower; flowers short-pedicelated, small-bracted, in helicoid cymes; calyx lobes narrow; corolla blue, 2-3 mm wide, appendaged; stamens and style included; nutlets  $\frac{1}{4}$  of a sphere, outer convex surface verrucose and bearing near each margin 2 rows of barbed prickles, attachment scar extending whole length of inner margin; fruiting pedicels erect.

1. \**Lappula squarrosa* (Retz.) Dumort.  
Naturalized (native of Eurasia)

European Stickseed

Stem rough; leaves narrow, linear, 2-6 mm wide; inflorescences well-defined; corolla blue, approx. 3 mm long, nutlets bearing apically barbed bristles. Syn.: *L. echinata* Gilib.

REFERENCES: Sullivant 1840:35 (*Echinosperrum lappula* Lehm.); Selby & Craig 1890:13 (*Echinosperrum lappula* Lehm., introduced); Selby 1892a:111 (#549 Re-collections); Cooperrider 1995:367 (illus. p. 368).

HERBARIUM RECORDS: Jul 1891—near Cols., *E. V. Wilcox*; 9 Jul 1892—Cols., *Bogue*; 8 Jun 1980—RR tracks S of Goodale Ave., end of Northwest Blvd., NE  $\frac{1}{4}$  SW Cols. Quad., *W. Carr 2917* (KE).

## 5. CYNOGLOSSUM L.

Leaves lanceolate or wider, lower petioled, upper sessile or sometimes clasping; flowers bractless; corolla funnellform or salverform, appendaged, tube short; stamens included in corolla tube; nutlets attached near their apex, covered with barbed or hooked prickles.

a Corolla blue to white; style shorter than nutlets; outer face of nutlets rounded; stem not leafy above, peduncle long. 1. *C. virginianum*

a' Corolla purple-red (rarely white); style overtopping nutlets; outer face of nutlets flat; stem leafy to top. 2. *C. officinale*

1. *Cynoglossum virginianum* L. var. *virginianum*

Wild Comfrey

Stem not leafy above; peduncle long; inflorescences terminal; corolla light blue, 1 cm wide or more, lobes overlapping; nutlets 7 mm long or more, rounded on outer faces, without raised borders.

REFERENCES: Riddell 1834:157 (*Cynoglossum amplexicaule*, open woods); Sullivant 1840:35 (*Cynoglossum virginicum* L.); Selby & Craig 1890:13 (*Cynoglossum virginicum* L.); Cooperrider 1995:360 (illus. p. 363).

HERBARIUM RECORD: 6 Jun 1891—Harrisburg?, *Selby*.

NOTE: The specimen cited is intermediate with †*Cynoglossum virginianum* L. var. *boreale* (Fernald) Cooperr.

2. \**Cynoglossum officinale* L.

Hound's-tongue

Naturalized (native of Eurasia)

Inflorescences axillary; stems smooth pubescent; leaves extend all the way upon stems, sessile, clasping; blades elliptic, more than 10 mm wide; corolla purple-red, lobes equal and spreading; nutlets somewhat concave with raised borders, surface covered with apically barbed bristles; styles overtopping nutlets.

REFERENCES: Riddell 1834:157 (roadsides); Sullivant 1840:35 (naturalized plants); Craig 1890:91 (sparingly along W. Woodward Ave., 18 May 1882, 14 May 1883, 21 May 1884, 26 May 1885, 15 May 1887); Selby & Craig 1890:13 (introduced); Cooperrider 1995:360 (illus. p. 363).

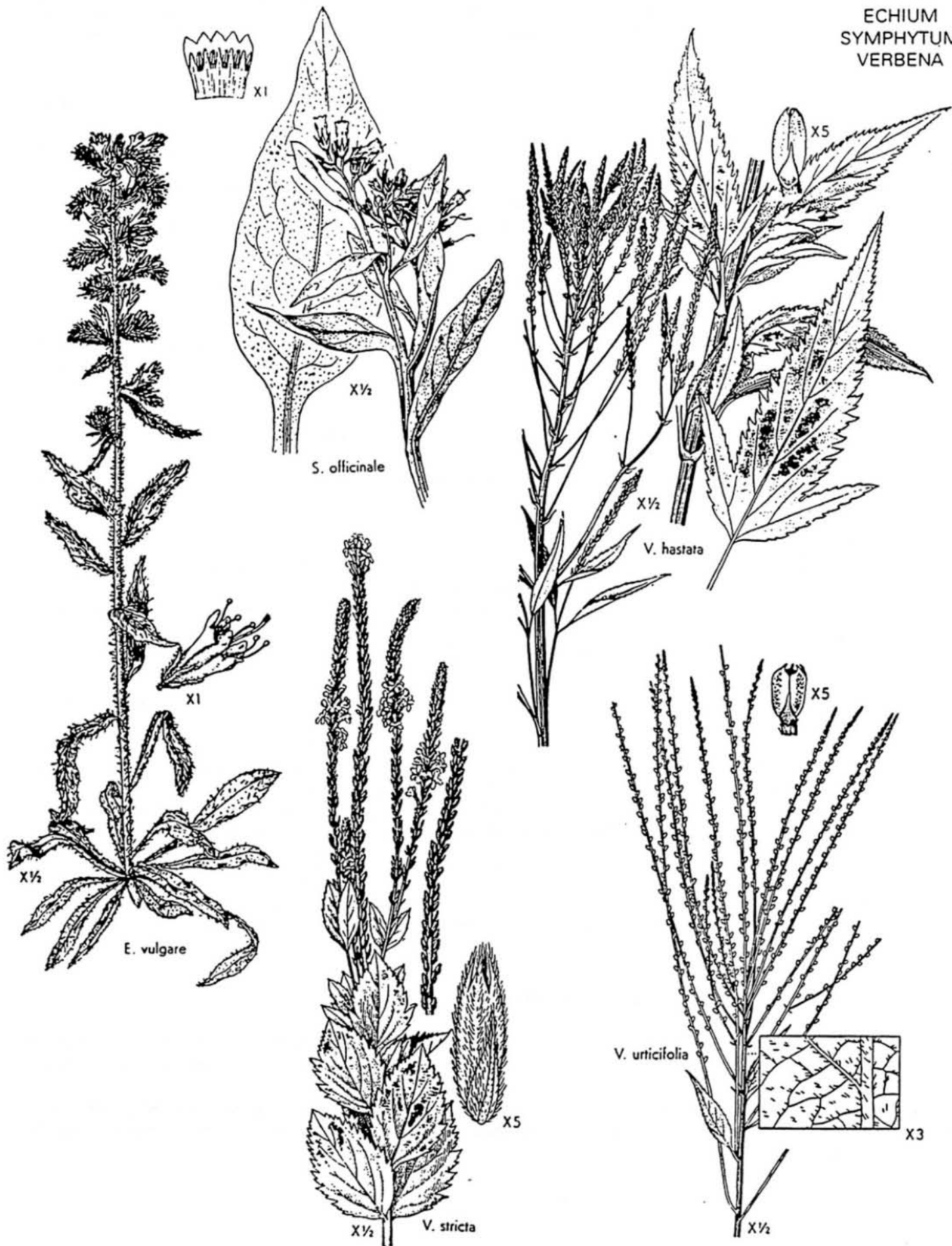
HERBARIUM RECORDS: Jun 1890—Cols., *Selby*; 3 May 1895—Cols., *student*; 27 May 1896—Clintonville, *M. Wright*; 1 Jun 1896—Cols., *McCall*; 24 May 1922—Devil's Half Acre, creek bottom, *Callahan*; 26 Jun 1972—along RR tracks at Hard Rd., NW Cols., *Mossman 1081*; 19 Jun 1973—Quarry 1 mi. S of Dublin, E side of Scioto R. along Rt. 33, Washington Twp., *Roberts 3592*; 3 Jun 1980—W side of Rt. 33,  $\frac{3}{4}$  mi. S of Rt. 161, abandoned quarry, Perry Twp., NW  $\frac{1}{4}$  NW Cols. Quad., *W. Carr 2872* (KE); 23 May 1991—Hayden Run, just W of Scioto R., S side of Hayden Run Rd., Norwich Twp., NW Cols. Quad., *McCormac 3569*; 29 May 1993—Hayden Run Falls, N limestone bank, just S of Hayden Run Rd., Norwich Twp., *Lowden 5050*.

## 6. LITHOSPERMUM L. Gromwell, Puccoon

Leaves linear to lance-ovate, sessile; flowers solitary and axillary or in leafy-bracted cymes; corolla funnellform or salverform; stamens usually included in corolla tube; style 2-lobed; nutlets smooth or pitted, erect, often shining.

*Lithospermum officinale* L. (European Gromwell, native of Eurasia) was reported by Sullivant 1840:35 and Selby & Craig 1890:13 (introduced). No specimens from Franklin County have been located. Not mentioned for Franklin Co. by Cooperrider 1995:356.

ECHIUM  
SYMPHYTUM  
VERBENA



- a Corolla bright yellow or orange, appendaged, tube evidently longer than calyx, limb 1 cm wide or more.  
1. *L. canescens*  
a' Corolla white or greenish-white, without appendages in throat, limb less than 1 cm wide. 2. *L. arvense*

1. *Lithospermum canescens* (Michx.) Lehm.

Puccoon, Hoary Puccoon

Pubescence soft and dense; flowers in tight terminal-axillary clusters; corolla yellow-orange exceeding the calyx, 10-15 mm wide, 10-18 mm long, tube glabrous within at base; nutlets white, shiny and smooth.

REFERENCES: Selby 1891a:111a; Cusick 1985:65 (distribution map); Cooperrider 1995:360 (illus. p. 359).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 9 May 1889—Georgesville, *Selby*; 9 May 1891—Georgesville, *Selby*; 9 May 1891—Big Darby, Cols., *Selby* (OS, WOOS); 6 Jun 1891—Harrisburg, *Selby* (OS, WOOS); May 1892—Georgesville, *E. M. Wilcox*; 7 May 1892—Georgesville, *Detmers*; 7 May 1892—Big Darby, Cols., *Selby*; 7 May 1892—Cols., *Werner*; 15 May 1931—Red Hills, *Chapman*; 18 May 1983—Battelle-Darby, *Owens*; 20 Apr 1991—bluffs at SE corner of jct. Rt. 665 & Graessle Rd., Pleasant Twp., Harrisburg Quad., *McCormac 3466*; 7 May 1992—Battelle-Darby Creek Metro Park, Cedar Bluff Overlook, Pleasant Twp., *Lowden 4930*.

NOTE: *Sullivant* 1840:34 (*Batschia canescens* Michx.) and *Selby & Craig* 1890:13 (*Lithospermum canescens* Lehm.) reported on plants collected in adjacent counties.

2. \**Lithospermum arvense* L.

Corn Gromwell, Wheat Thief

Naturalized (native of Eurasia)

Plants with slender taproot; stem rough; leaves linear-lanceolate, without evident lateral veins; flowers in axillary clusters; corolla white, slightly exceeding the calyx; nutlets wrinkled, gray or brownish.

REFERENCES: *Craig* 1890:91 (a very abundant weed in fields and pastures, 18 Apr 1882, 28 Apr 1883, 19 Apr 1884, 27 Apr 1885, 17 Apr 1886, 15 Apr 1887, 17 Apr 1888, 9 Apr 1889); *Selby & Craig* 1890:13 (introduced); *Cooperrider* 1995:358 (illus. p. 359).

HERBARIUM RECORDS: 20 May 1888—OSU garden, Cols., *Lazenby*; Jun 1888—Cols., *Craig*; Spring 1889—Franklin Co., *Craig*; Apr 1890—Cols., *Selby* (OS, WOOS); 15 May 1901—OSU Farm, *Eckman*; 16 May 1903—N of Cols., *Morse*; 8 May 1911—½ mi. E of Westerville, cult. field, *Hanawalt*; 15 May 1924—Westerville, *Whetstone*; 8 May 1980—RR 1 blk. E of N. 4th St., between Hudson St. & 17th Ave., Cols., SW corner NE Cols. Quad., *W. Carr 2702* (KE); 16 May 1989—RR track at Highland Dr., S of Henderson Rd. & W of Olentangy River Rd., Clinton Twp., *Lowden 4066*; 20 May 1989—along RR tracks below Whittier St. bridge, 1/8 Mi. W of Front St., Franklin Twp., SW Cols. Quad., *McCormac 662*.

7. ONOSMODIUM Michx. False Gromwell

Leaves sessile, strongly ribbed, the cauline ovate; flowers bracted, helicoid cymes terminal on the branches; corolla whitish, tubular, erect lobes shorter than tube, not appendaged; stamens included; style exerted, bifid at tip; nutlets ovoid, short-necked at base.

1. †*Onosmodium molle* Michx. var. *hispidissimum* (Mack.) Cronquist

False Gromwell

Cauline leaves ovate, sessile, strongly ribbed; corolla white, lobes erect, tips acute to acuminate; stems hispid; styles exerted; nutlets glabrous and pitted. Syn.: *O. hispidissimum* Mack.

REFERENCES: *Riddell* 1834:157 (*Onosmodium hispidum*, dry prairies); *Sullivant* 1840:35 (*Onosmodium hispidum* Michx.); *Selby* 1891a:111a (*Onosmodium carolinianum* DC.); *Cooperrider* 1995:356 (illus. p. 357).

HERBARIUM RECORDS: 1837—Cols., *J. Paddock* Collection, *I. G. Jones* (ILL); 1 Jul 1891—Big Darby, *Selby* (WOOS); 1 Jul 1891—Big Darby, Cols., *Werner*; 1 Jul 1891—Georgesville, *Werner* (CLM); 3 Aug 1891—Franklin Co., *Selby*; 3 Oct 1891—Georgesville, *Selby*.

NOTE: Probably *Selby & Craig* 1890:13 (*Onosmodium virginianum* DC.) belongs here.

8. ECHIUM L.

Leaves lanceolate or oblanceolate, cauline sessile, basal tapering to winged petioles; many short cymes in axils of leaflike bracts; corolla blue or white, zygomorphic, tubular or funnellform, lobes unequal, appendages lacking; stamens unequal, long-exsert; style villous, exsert; nutlets ovoid, rough.

1. \**Echium vulgare* L.

Blue-weed, Blue-devil

Naturalized (native of S Europe)

Stems rough, bristly-hispid; leaves lanceolate to oblanceolate; corolla blue, lobes unequal; stamens exerted, unequal in length.

REFERENCE: *Cooperrider* 1995:355 (illus. p. 357).

HERBARIUM RECORDS: 25 Jun 1931—W of Hague Ave., Cols., *Wolfe*; 7 Aug 1986—RR yard, SE of jct. of Cleveland Ave. & 1st Ave., SE Cols. Quad., *Burns 4066* (KE).



9. SYMPHYTUM L. Comfrey

Coarse perennials; blades ovate or lance-ovate, petioles usually winged; corolla tubular-campanulate, limb little wider than tube, teeth or lobes short; appendages and stamens attached at same level; nutlets with toothed ring at base.

1. \**Symphytum officinale* L.

Common Comfrey

Naturalized (native of Eurasia)

Plant coarse, hirsute, scabrous; stem conspicuously winged; leaf-bases decurrent along the stem; corolla blue or yellowish, lobes obtuse at apex; nutlets smooth.

REFERENCES: Riddell 1834:157 (naturalized, roadsides); Cooperrider 1995:355 (illus. p. 357).

HERBARIUM RECORDS: Jun 1891—Canal Winchester, Selby; Aug 1891—Cols., E. M. Wilcox; May 1893—near Cols., E. M. Wilcox; 19 May 1912—Canal Winchester, A. Harris; 20 May 1977—100 blk. of W. Tenth Ave., untended yard, large colony, W. Carr 228; 31 May 1977—100 blk. of W. 10th Ave., S OSU campus, Cols., W. Carr 281.

VERBENACEAE, Vervain Family

Herbs; leaves usually opposite, simple, sometimes incised or lobed; flowers hypogynous, perfect; corolla 4-5 lobed, nearly regular or 2-lipped; stamens 4, on the corolla, 2 longer; carpels 2, united; locules 1, 2 or 4; style 1; fruit an achene or splitting at maturity into as many 1-seeded nutlets as locules. (incl. Phrymaceae)

a Ovary 2 or 4 loculed; fruit splitting at maturity into as many 1-seeded nutlets as locules.

b Flowers in single or paniced spikes; corolla 5-lobed, slightly irregular; style-tip 2-lobed; locules 4.

1. VERBENA

b' Flowers in small heads on axillary peduncles; corolla 4-lobed, 2-lipped; stigma capitate; locules 2. 2. PHYLA

a' Ovary 1-loculed, uniovulate; fruit an achene. 3. PHRYMA

1. VERBENA L. Vervain, Verbena

Leaf-blades serrate, incised, or pinnatifid; flowers bracted, in spikes; calyx 5-toothed or -lobed; corolla salverform or funnelform, 5-lobed; stigma 2-lobed; ovary 4-loculed, splitting into 4 one-seeded nutlets at maturity.

a Corolla 2-3 cm long, blue, purple, or white, tube about twice as long as calyx; about 1 cm long. 6. *V. canadensis*

a' Corolla much shorter than 2 cm; fruiting calyx not more than 0.5 cm long.

b Bracts of inflorescence longer than flowers; blades lobed or incised; plants often mat-forming. 5. *V. bracteata*

b' Bracts of inflorescence shorter than flowers; plants erect.

c Corolla white; fruits remote in very slender spikes. 1. *V. urticifolia*

c' Corolla blue or purple, rarely white; fruits imbricated in the spikes.

d Plants densely and softly hairy; blades broadly obovate or rounded, sessile or nearly so. 3. *V. stricta*

d' Plants glabrous or somewhat rough-hairy.

e Blades oblanceolate or linear, tapering to sessile or subsessile base, mostly obtuse at tip.

4. *V. simplex*

e' Blades lanceolate or lance-ovate, sometimes hastately lobed, petioled, acuminate. 2. *V. hastata*

1. *Verbena urticifolia* L. var. *urticifolia*

White Vervain, Nettle-leaved Vervain

Inflorescences spicate, in groups of several to many; flowers and especially the fruits separated and not overlapping on the inflorescence axis; corolla white.

REFERENCES: Riddell 1834:157 (bottomland); Sullivant 1840:37; Craig 1890:54, 95 (common along the river and in the woods, 15 Jul 1882, 30 Jul 1887, University Farm Sep 1887); Selby & Craig 1890:14; Cooperrider 1995:371 (illus. p. 372).

HERBARIUM RECORDS: Jul 1888—Cols., Craig; 18 Aug 1892—Cols., Bogue; 13 Sep 1895—Cols., Osburn; 16 Aug 1898—OSU Bot. Garden, J. H. Schaffner; 8 Oct 1907—OSU campus, fields & waste places, Pierce; 12 Jul 1982—Blendon Woods, Owens; 2 Aug 1982—Highbanks Metro Park (Franklin & Delaware Cos.), floodplain, G. Moore 334; 19 Jul 1987—Highbanks Metro Park (Delaware Co.), field, Higgins 22 (OS, OWU); 5 Aug 1989—ditch along Godown Rd., between Commerce Pl. & Le Anne Marie circle, Perry Twp., Lowden 4242; 16 Jul 1990—Overbrook Dr. Ravine off N. High St., Clinton Twp., Lowden 4446; 16 Jul 1990—Whetstone Park of Roses, along path behind Blenheim Rd. bus turn around, Clinton Twp., Lowden 4449; 23 Jun 1991—E bank of Scioto R., from Lane Rd. to Lane Ave., Upper Arlington, Perry Twp., Lowden 4711; 5 Jul 1991—E bank of Olentangy R., between Lane Ave. & King Ave., OSU campus, Cols., Clinton Twp., Lowden 4765.