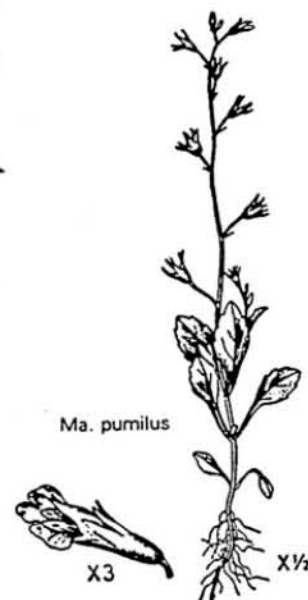
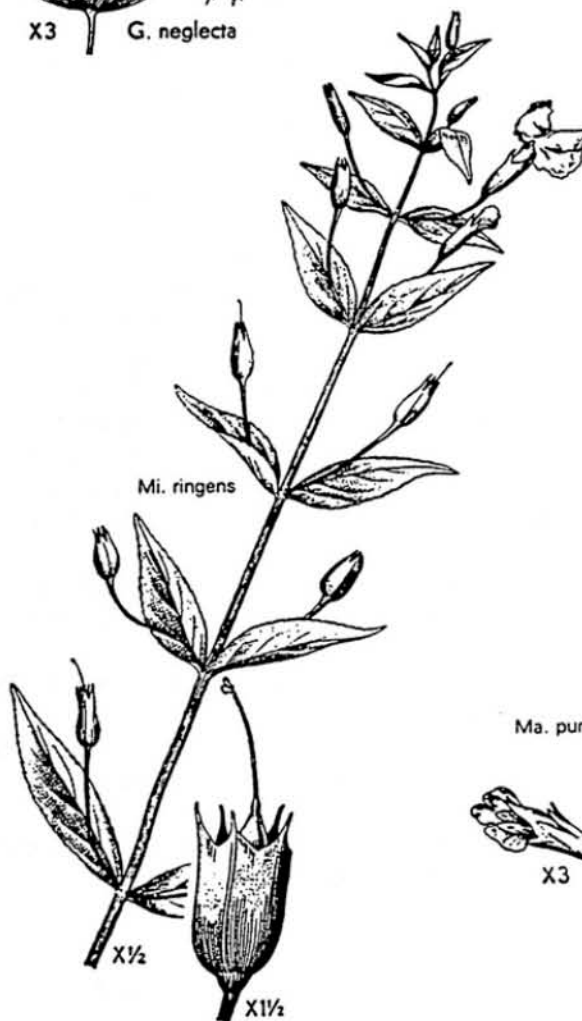


FRAXINUS  
GRATIOLA  
LEUCOSPORA  
MIMULUS  
MAZUS



Park; Cols., *T. Lammers* 6123; 22 Jul 1987—Highbanks Metro Park (Delaware Co.), *B. Reed*; 23 Jun 1991—E bank of Scioto R., Lane Rd. S to Fishinger Rd. bridge, Perry Twp., *Lowden* 4719 & 4727.

**3. *Fraxinus nigra* Marshall**

Black Ash, Water Ash

Tree; leaves pinnately compound; leaflets 7-11, the sessile bases with a tuft of hairs extending onto the rachis; samaras oblong, wing decurrent to base of fruit; calyx none.

REFERENCES: Riddell 1834:156 (*Fraxinus sambucifolia*); Sullivant 1840:40 (*Fraxinus sambucifolia* Willd.); Craig 1890:89 (*Fraxinus sambucifolia* Lam., common in the woods and along the river, 15 Apr 1882, 23 Apr 1884, 16 May 1885); Selby & Craig 1890:12 (*Fraxinus sambucifolia* Lam.); Cooperrider 1995:290 (illus. p. 289).

HERBARIUM RECORDS: 1835—Cols., *J. Paddock Collection*, *Lapham* (ILL); 1897—OSU campus, *Ruppersberg*; 20 Aug 1899—Scioto R., *Selby*; Fall 1907—OSU campus, *McCray*.

**4. *Fraxinus quadrangulata* Michx.**

Blue Ash

Tree; branches 4-angled or 4-winged; samara wing decurrent almost to base of fruit, apex of samaras usually notched.

REFERENCES: Sullivant 1840:40; Craig 1890:89 (2 or 3 specimens on the campus, 17 Apr 1887); Selby & Craig 1890:12; Braun 1961:312 (illus. p. 310); Cooperrider 1995:290 (illus. p. 289).

HERBARIUM RECORDS: Sep 1840—banks of Olentangy, *J. Paddock Collection* (ILL); 22 Aug 1890—Scioto R., *Selby*; 30 May 1895—N Cols., *Osburn*; 5 Jun 1895—Cols., *W. Kellerman*; 19 May 1896—W Cols., *M. Wright*; 31 May 1896—Cols., *E. M. Wilcox*; 20 & 22 Aug 1899—Scioto R., *Selby* (OS, WOOS); Sep 1901—Cols., *J. H. Schaffner*; 6 Oct 1902—Cols., *Sanders*; Fall 1907—OSU campus, *McCray*; 23 Sep 1935—Indian Springs ravine, Cols., *J. H. Schaffner*; 1 Apr 1967—E bank of Scioto R., abandoned quarry, approx. 1 mi. S of Dublin, Perry Twp., *Stuckey* 3352; 9 Apr 1967—S bank of Darby Creek, approx. ½ mi. SW of Darbydale, Pleasant Twp., *Stuckey* 3409; 9 Apr 1967—N of cemetery, approx. ¾ mi. W of Darbydale, Pleasant Twp., *Stuckey* 3416; 30 Aug 1982—Scenic Nature Preserve, Highbanks Metro Park (Franklin & Delaware Cos.), *Brauning* 207; 18 Sep 1982—Scenic Nature Preserve, Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, *G. Moore* 208; 8 Aug 1987—Highbanks Metro Park (Delaware Co.), *Kosko* 58; 23 Jun 1991—E bank of Scioto R., from Lane Rd. S to Fishinger Rd. bridge, *Lowden* 4733 & 4734.

**SCROPHULARIACEAE, Figwort Family**

Mostly herbs; leaves alternate or opposite, rarely whorled, without stipules; flowers hypogynous, perfect; calyx with 5, or rarely 4, lobes or divisions; corolla zygomorphic or rarely nearly regular, often 2-lipped, sometimes spurred or gibbous, lobes 5 or 4; stamens on corolla-tube, rarely 5, usually 4 or 2; when 4, a fifth sometimes present without an anther or as a vestige; when 2, 1-3 vestiges sometimes present; hypogynous disk usually present; carpels 2, united; ovary 2-loculed, placentation axile; ovules many, rarely few; style 1; stigma 1 or 2-lobed; fruit a capsule, usually ovoid.

a Anther-bearing stamens 5; corolla rotate, almost regular. **6. VERBASCUM**

a' Anther-bearing stamens 4; fifth stamen absent, vestigial, or only a filament. (See a".)

b Corolla with slender spur on lower side.

c Flowers in terminal racemes; leaves entire, linear to lanceolate. **11. LINARIA**

c' Flowers axillary, solitary or rarely in small clusters.

d Blades linear to spatulate; plants low, upright, much branched; corolla-throat with palate, but open; capsule asymmetric. **14. CHAENORRHINUM**

d' Blades nearly circular, shallowly lobed or coarsely toothed, palmately veined; slender glabrous vine; corolla-throat closed by palate; capsule symmetric. **12. CYMBALARIA**

b' Corolla without a spur, but sometimes gibbous or saccate.

e Corolla nearly regular, scarcely 2-lipped, lobes flat or nearly so, only slightly unequal; vestigial stamen minute or absent.

f Leaves alternate; flowers in one-sided raceme; corolla-lobes much shorter than tube. **15. DIGITALIS**

f' At least the lower leaves opposite; flowers not in one-sided racemes; corolla-lobes about equaling tube or shorter.

g Corolla purple, pink-purple, or rarely white. **18. AGALINIS**

g' Corolla yellow.

h Anthers glabrous, not awned at base. **16. DASISTOMA**

h' Anthers pubescent, awned at base. **17. AUREOLARIA**

e' Corolla evidently 2-lipped.

i Upper lip narrow or folded lengthwise or galeate, enclosing the stamens, which ascend under it and are not or little exerted beyond it.

- j Pollen-sacs unlike, unequal; floral bracts red, white, or yellow, usually cleft; blades longitudinally veined. **22. CASTILLEJA**
- j' Pollen-sacs equal and parallel; bracts not brightly colored; blades pinnately veined. **21. PEDICULARIS**
- i' Upper lip not as above; stamens not enclosed in upper lip, but exerted, or included in throat, or enfolded in lower lip.
- k Blades pinnately parted; small, diffuse, pubescent; flowers axillary, corolla about 4 mm long. **2. LEUCOSPORA**
- k' Blades serrate to entire.
  - l Flowers axillary, solitary; calyx-teeth much shorter than tube; palate prominent. **3. MIMULUS**
  - l' Flowers in whorls in upper axils or in spikes, racemes, or panicles; calyx-lobes equaling or longer than tube.
  - m Antherless stamen equaling or longer than those with anthers, bearded; flowers in terminal panicles. **8. PENSTEMON**
  - m' Antherless stamen absent or smaller than the others.
  - n Flowers in terminal spikes or racemes.
    - o Corolla less than 1 cm long; plant to about 2 dm tall. **4. MAZUS**
    - o' Corolla and plant larger.
    - p Corolla open, without palate, lobes very short or lower median one elongate; leaves alternate. **15. DIGITALIS**
    - p' Corolla-throat closed or nearly closed by palate.
      - q Blades entire, opposite or alternate; ovary and capsule asymmetric; upper lip of corolla the longer. **13. ANTIRRHINUM**
      - q' Blades serrate, opposite; ovary and capsule symmetric; lower lip of corolla the longer. **7. CHELONE**
  - n' Flowers clustered or solitary in upper axils, or in panicles.
  - r Corolla brown-purple, tube globose or ellipsoid; upper lip erect. **9. SCROPHULARIA**
  - r' Corolla blue and white, middle lobe of lower lip folded, enclosing stamens and style. **10. COLLINSIA**
- a" Anther-bearing stamens 2; 1-3 others sometimes present as vestiges.
  - s Corolla rotate, tube short, lobes 4; capsule usually notched or obcordate, usually flattened; foliage leaves opposite, those subtending flowers alternate; style and calyx persistent. **20. VERONICA**
  - s' Corolla-tube longer than corolla-lobes.
  - t Flowers in terminal spikelike racemes; stamens much exerted; leaves in whorls; corolla 4-lobed; tall. **19. VERONICASTRUM**
  - t' Flowers axillary; stamens included or barely exerted; leaves opposite; corolla 2-lipped; plants short.
  - u Calyx subtended by a pair of sepal-like bracts. **1. GRATIOLA**
  - u' Calyx not subtended by bracts. **5. LINDERNIA**

### 1. GRATIOLA L. Hedge-hyssop

Low herbs of wet habitats; leaves opposite, sessile, entire or dentate; flowers solitary in axils; sepals nearly separate, subtended by a pair of sepaloïd bracts; corolla white, yellow, or purple, 1-1.5 cm long, more or less 2-lipped; anther-bearing stamens 2, sometimes 2 vestiges present.

#### 1. *Gratiola neglecta* Torr.

Common Hedge-hyssop

Stem pubescent, glandular-viscid above; leaves opposite, blades broadest at mid point or above, tapering at base; flowers solitary in leaf axils; pedicels slender, 1-2 cm long; calyx subtended by a pair of sepal-like bracts; corolla white, tinged with green or yellow; capsules symmetrical, about equalling calyx lobes.

REFERENCES: Sullivant 1840:38 (*Gratiola virginica* L.); Selby & Craig 1890:13 (*Gratiola virginiana* L.); Kellerman & Werner 1893:229 (*Gratiola virginiana* L., found along the brook and river also in the low ground bordering the lagoons); Cooperrider 1995:465 (illus. p. 466).

HERBARIUM RECORDS: [ca. 1834]—Cols., [Lapham] (URB); May 1890—Cols., Selby; May 1890—Worthington Big Woods, Selby (WOOS); 20 Jul 1890—Glover's Woods, Hilliard, near Cols., Selby; Aug 1890—Cols., Selby; 30 May 1896—Reservoir Park, M. Wright; 11 Jun 1989—Highbanks Metro Park, N of Franklin/Delaware Co. line, ¼ mi. W of Rt. 23, Watts 477; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville,

Blendon Twp., *Lowden 4674*; 12 Jun 1992—Pickerington Pond, locally common in low muddy ground along shores of kettle lake, Madison Twp., Reynoldsburg Quad., *McCormac 4712*.

NOTE: Based on misidentified specimens, the references made to *Gratiola virginiana* L. belong here.

## 2. LEUCOSPORA Nutt.

Low, branching, pubescent; leaves deeply pinnatifid, segments oblong or linear; flowers small, axillary, pediceled, solitary or in 2's; sepals linear, almost separate; corolla lavender, 2-lipped, lips shorter than tube; stamens 4, of 2 lengths, included.

### 1. *Leucospora multifida* (Michx.) Nutt.

Plants 1-2 dm tall, glandular-pubescent; leaves mostly in whorls of 3, lowest leaves opposite; blades deeply pinnately lobed, lobes linear or oblong; flowers solitary in leaf axils; calyx deeply 5-lobed; corolla pale blue-purple. Syn.: *Conobea multifida* (Michx.) Benth.

REFERENCE: Cooperrider 1995:467 (illus. p. 468).

HERBARIUM RECORDS: 2 Oct 1987—W bank of the Olentangy R., just N of the Lane Ave. bridge & S of the Fawcett Center for Tomorrow, wet open mudflat, Cols., *T. Lammers & Stuckey 6189*; 16 Aug 1990—church at NW corner of Rt. 23 & Rt. 161, common as a weed in cracks in an asphalt parking lot, Sharon Twp., NW Cols. Quad., *McCormac 3067*.

## 3. MIMULUS L. Monkey Flower

Stem 4-angled, angles sometimes winged; leaves opposite, serrate or dentate, lanceolate or wider; flowers solitary in axils; calyx 5-angled, 5-toothed; corolla blue to pink or rarely white, 2-4 cm long, 2-lipped, throat nearly closed by palate; stamens 4; capsule enclosed by persistent calyx.

a Leaves sessile; peduncles longer than calyx. 1. *M. ringens*

a' Leaves petioled; peduncles mostly shorter than calyx. 2. *M. alatus*

### 1. *Mimulus ringens* L. var. *ringens*

Common Monkey Flower

Similar to *Mimulus alatus* except leaves are sessile, clasping, broad at base and auriculate; calyx lobes acutely triangular-attenuate, and peduncles more than 1 cm long.

REFERENCES: Riddell 1834:157 (the bed of small rivulets); Sullivant 1840:38; Craig 1890:93 (rather common along the island lagoons, 31 Jul 1882, 30 Jul 1887); Selby & Craig 1890:13; Cooperrider 1995:464 (illus. p. 463).

HERBARIUM RECORDS: 31 Jul 1882—Olentangy R., *W. Green*; Jul 1888—Cols., *Craig*; 20 Jul 1890—Island in Scioto R., by Wyandot Grove, *Selby*; 7 Aug 1890—Jaeger's Ice Ponds, Cols., *Selby* (OS, WOOS); 15 Aug 1890—Cols., *Werner* (CLM); 23 Aug 1892—Cols., *Bogue*; 11 Jul 1964—bank of the Scioto R., 2 mi. S of Dublin off Rt. 33, *Gambill, Jr.* (BHO); 15 Aug 1972—Scioto R. at Greenlawn Ave. bridge, abundant in marshes, *Roberts 3040*; 4 Aug 1974—borrow pit along Olentangy R. near intersection of Rt. 315 (Olentangy River Rd.) & W. North Broadway, common on dry clay bank in old field, Cols., *Roberts 4412*; Summer 1988—along the Olentangy R., OSU campus, Cols., *DeLong*; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, *DeLong*; 28 Aug 1989—along N embankment of Little Darby Creek, opposite Georgesville, Battelle Darby Creek Metro Park, Pleasant Twp., *Lowden 4304*; 9 Aug 1990—S side of Hibbs Rd., 1 mi. E of Rt. 104, Jackson Twp., *Lowden 4536*; 9 Aug 1990—S side of Berger Rd., 1 mi. E of Richardson Rd., Madison Twp., *Lowden 4545*; 5 Jul 1991—E bank of Olentangy R., OSU campus, between Lane Ave. & King Ave., Cols., Clinton Twp., *Lowden 4773*; 10 Aug 1992—Pickerington Ponds, wetland wildlife area, just S of Wright Rd., & E of Bowen Rd., Madison Twp., *Lowden 5025*.

### 2. *Mimulus alatus* Aiton

Sharp-winged Monkey Flower

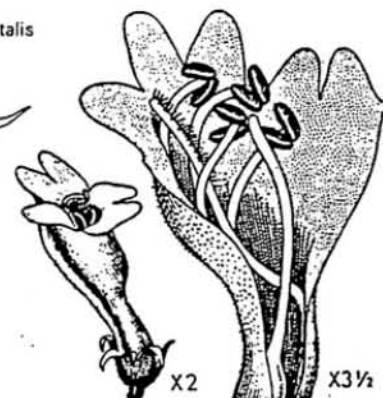
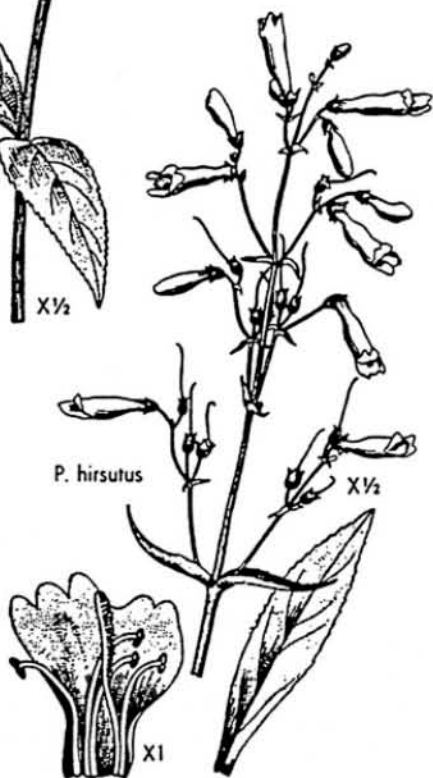
Stems more or less winged; leaves opposite, petiolate, narrowed at base, not clasping; flowers solitary in upper axils; peduncles usually less than 1 cm long; calyx lobes much shorter than tube, broad and obtuse; corolla bilabiate, bluish-purple, pink or rarely white.

REFERENCES: Riddell 1834:157 (the bed of small rivulets); Sullivant 1840:38; Selby & Craig 1890:13; Kellerman & Werner 1893:229 (found along the river with *Mimulus ringens* and equally abundant, Aug 1890); Cooperrider 1995:464 (illus. p. 463).

HERBARIUM RECORDS: [ca. 1834]—Cols., [*Lapham*] (URB); 15 Jul 1892—Georgesville, *Bogue*; 23 Aug 1892—near Cols., *E. M. Wilcox*; 27 Jul 1982—Highbanks Metro Park (Franklin & Delaware Cos.), riverbank, infrequent, *G. Moore 300*; 3 Aug 1982—Blendon Woods, *Owens*; Summer 1988—along Big Darby Creek, between I-70 & Little Darby Creek, *DeLong*.

## 4. MAZUS Lour.

LINDERNIA  
VERBASCUM  
CHELONE  
PENSTEMON



Plants small, short-hairy; basal leaves spatulate, irregularly toothed, cauline often smaller; racemes 4-10 flowered at maturity; flowers alternate in terminal raceme each subtended by a minute bract at the base of the pedicel.

1. \**Mazus pumilus* (Burm.f.) Steenis  
Adventive (native of E Asia)

Calyx 5-parted to a little beyond the middle, reaching 9 mm long in fruit, segments equal with evident midrib; upper lip of corolla much shorter than the lower, 7-10 mm long, blue-violet, marked with yellow and white. Wet bottomlands. Syn.: *M. japonicus* (Thunb.) Kuntze

HERBARIUM RECORD: 8 Sep 1992—between nursery & Olentangy R., uncommon, mulch in moist weedy ground, Olentangy River Rd., N of Union Cemetery, NW Cols. Quad., *Cusick 30495*.

NOTE: Not reported for Franklin Co. by Cooperrider 1995:439 (only Pickaway & Scioto Cos.).

5. LINDERNIA All. False Pimpernel

Small, glabrous; leaves opposite, entire or remotely dentate; flowers stalked in the axils; sepals almost separate; corolla violet to white, about 1 cm long or less, 2-lipped; stamens 4, 2 with anthers, 2 without.

1. †*Lindernia dubia* (L.) Pennell

False Pimpernel

Plants glabrous; leaves opposite, tapering at base; flowers solitary in leaf axils; peduncles shorter or exceeding subtending leaves; calyx deeply 5-lobed; corolla pale purple to white; capsules slightly asymmetric. Syn.: *Ilysanthes inaequalis* (Walter) Pennell; incl. *Lindernia dubia* (L.) Pennell var. *riparia* (Raf.) Fernald

REFERENCES: Riddell 1834:157 (*Lindernia attenuata*, marshes); Sullivant 1840:38 (*Lindernia dilatata* Muhl.); Craig 1890:93 (*Ilysanthes riparia* Raf.; last fall I found a few specimens growing on the river bank N of the dyke in the extreme NW corner of the farm); Selby & Craig 1890:13 (*Ilysanthes riparia* Raf.); Selby 1892a:111 (#582 Re-collections); Kellerman & Werner 1893:226 (*Ilysanthes riparia* Raf.); Cooperrider 1995:467 (illus. p. 468).

HERBARIUM RECORDS: 1840—Cols., Sullivant; 13 Aug 1890—Cols., Werner (CLM); 30 Aug 1890—Cols., Werner (CLM); 17 Sep 1892—Cols., Werner; 15 Aug 1972—Scioto R. at Greenlawn Ave. bridge, on mud flats, Cols., Roberts 3039; Summer 1988—OSU campus, along Olentangy R., Delong; 5 Jul 1991—E bank of Olentangy R., OSU campus, just S of Lane Ave. bridge, Cols., Clinton Twp., Lowden 4754; 23 Sep 1991—E bank of Scioto R., just N of I-270, Hamilton Twp., SW Cols. Quad., McCormac 4349; 10 Aug 1992—Pickerington Ponds, wetland wildlife area, just S of Wright Rd., & E of Bowen Rd., Madison Twp., Lowden 5033.

NOTE: Distinguished from *Gratiola neglecta* by having asymmetric capsules and no sepaloid bracts subtending the calyx.

6. VERBASCUM L. Mullein

Tall; biennial with winter rosettes; leaves alternate, entire, crenate, or toothed, cauline sessile; flowers in terminal branched or unbranched spikes or racemes; stamens 5, often dimorphic, 3 or all of the filaments villous.

*Verbascum virgatum* Stokes (Twiggy Mullein, European) was reported by Cooperrider 1995:446.

Flowers in a raceme, axis with simple long non-glandular hairs; shorter hair with glands; pedicels less than 5 mm long; corolla yellow (Jul 1891—near Cols., E. V. Wilcox, BGSU, OS).

- a Plants not woolly, glandular pubescent in upper part; corolla white or yellow, about 2.5 cm wide; flowers pediceled; all filaments villous. 1. *V. blattaria*  
a' Plants woolly with branched hairs; corolla yellow; flowers sessile or nearly so; 3 upper filaments densely villous, other 2 glabrous or somewhat villous. 2. *V. thapsus*

1. \**Verbascum blattaria* L.

Moth Mullein

Naturalized (native of Eurasia)

Stems somewhat glabrous below the inflorescence, glandular-pubescent along raceme axil; leaves alternate, glabrous on undersurface; pedicels more than 5 mm long; corolla yellow or white.

REFERENCES: Riddell 1834:157 (bottomland); Sullivant 1840:39; Craig 1890:54, 93 (recently introduced, probably in impure clover seed, six years ago there was none in the grounds, now it is becoming abundant in the pasture E of the woods, along Woodward Ave., and elsewhere, 20 Jun 1887, 6 Jun 1888, 17 Jun 1889, University Farm Sep 1887); Selby & Craig 1890:13 (introduced); Cooperrider 1995:447 (illus. p. 449).

HERBARIUM RECORDS: 13 Jul 1892—Cols., Bogue; Fall 1899—Cols., J. H. Schaffner; Summer 1938—OSU Botanical Gardens, C. Jones; 29 Jun 1983—Blendon Woods, Owens; 16 Jul 1986—Highbanks Metro Parks (Delaware Co.), field, Watts 317 (OS, OWU); 11 Jun 1989—Highland Dr., along RR tracks, W of Olentangy River Rd., & S of Henderson Rd., Clinton Twp., Lowden 4139; 1 Aug 1990—Delawanda Park, E bank of Olentangy R., behind Graceland Shopping Center, Sharon Twp., Lowden 4478; 18 Jun 1991—Dublin Rd, 1 mi. N of Tuttle Rd., between bridge & deep canyon ravine leading to W bank of the Scioto R., Washington Twp., Lowden 4703.

2. *Verbascum thapsus* L.

Common Mullein, Velvet-plant

Naturalized (native of Europe)

Plants densely velvety pubescent; leaves alternate, cauline blades decurrent to next lower node; flowers 2 cm wide or less, in a dense spicate inflorescence; corolla yellow.

REFERENCES: Riddell 1834:157 (roadsides); Sullivant 1840:39 (naturalized plants); Craig 1890:93 (not very common, in fields and pastures, 22 Jun 1882, 25 Jun 1884, 29 Jun 1887, 1 Jul 1888, University Farm Sep & Oct 1887); Selby & Craig 1890:13 (introduced); Cooperrider 1995:446 (illus. p. 449).

HERBARIUM RECORDS: 8 Jul 1892—Cols., *Bogue*; Jul 1911—4 mi. E of Westerville, old pasture, *Hanawalt*; 23 Sep 1974—Wright Rd. Pond, field bounded by Bowen Rd. to the W & marsh to the E, Madison Twp., May 22; 1 Jul 1982—Blendon Woods, *Owens*; 10 Jul 1990—Lazelle Rd., jct. with Flint Rd., along RR tracks, Sharon Twp., *Lowden 4436*.

7. CHELONE L. Turtlehead

Upright, usually glabrous, of wet places; leaves opposite, serrate; flowers in terminal spikes, each subtended by sepaloïd bracts; sepals separate or nearly so; corolla 2-3.5 cm long, 2-lipped, upper lip arched, emarginate, lower lip with densely pubescent palate; filaments with anthers 4, villous, longer than the glabrous antherless one; anthers heart-shaped, woolly.

1. *Chelone glabra* L.

Turtlehead, Snake's Head

Two varieties are recognized:

†var. *glabra*

Stems glabrous; leaves opposite, lanceolate to narrowly ovate; flowers in spicate inflorescences; corolla bilabiate, white or cream, or slightly pink-purple, throat nearly closed by villous palate; anthers densely woolly. Syn.: *C. glabra* L. var. *elongata* Pennell & Wherry

REFERENCES: Riddell 1834:157 (the bed of small rivulets—meadows); Sullivant 1840:38; Selby & Craig 1890:13; Cooperrider 1995:454 (illus. p. 455).

HERBARIUM RECORDS: 9 Sep 1882—Cols., *W. Green*; 15 Sep 1899—Srecaium Park, *Helfrich*; 7 Sep 1982—Blendon Woods, margins of Thoreau Lake, *Owens*.

var. *linifolia* N. Coleman

Turtlehead

Similar to the typical var. except leaves are linear to narrowly lanceolate, corolla greenish-yellow at tip.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: Not mentioned for Franklin Co. by Cooperrider 1995:454 (illus. p. 455).

8. PENSTEMON Schmidel Beardtongue

Leaves opposite, entire or toothed, upper often clasping; flowers showy, in panicles; corolla more or less 2-lipped, white, pale purple, or blue, 2 cm long or more; anther-bearing stamens 4, not exerted; antherless filament equaling or longer than the others, bearded; style elongate.

- a Corolla little widened distally, not gibbous, tube slender, somewhat flattened, throat strongly ridged within, lower lip evidently longer than upper; antherless filament densely bearded.
- b Corolla with dull purple throat and whitish lobes, tube closed by arching palate; stem with fine, spreading, sometimes gland-tipped, whitish hairs; lower surface of blades glabrate or midvein pubescent. 1. *P. hirsutus*
- b' Corolla purple-lined within, white outside, throat not closed by palate; stem closely gray-puberulent or rarely villous; lower leaf-surface densely pubescent with short hairs. 3. *P. pallidus*
- a' Corolla abruptly widened distally, consisting of narrower tube and gibbous throat, throat not ridged within, lower lip not much longer than upper; antherless filament slightly bearded. 2. *P. digitalis*

1. *Penstemon hirsutus* (L.) Willd.

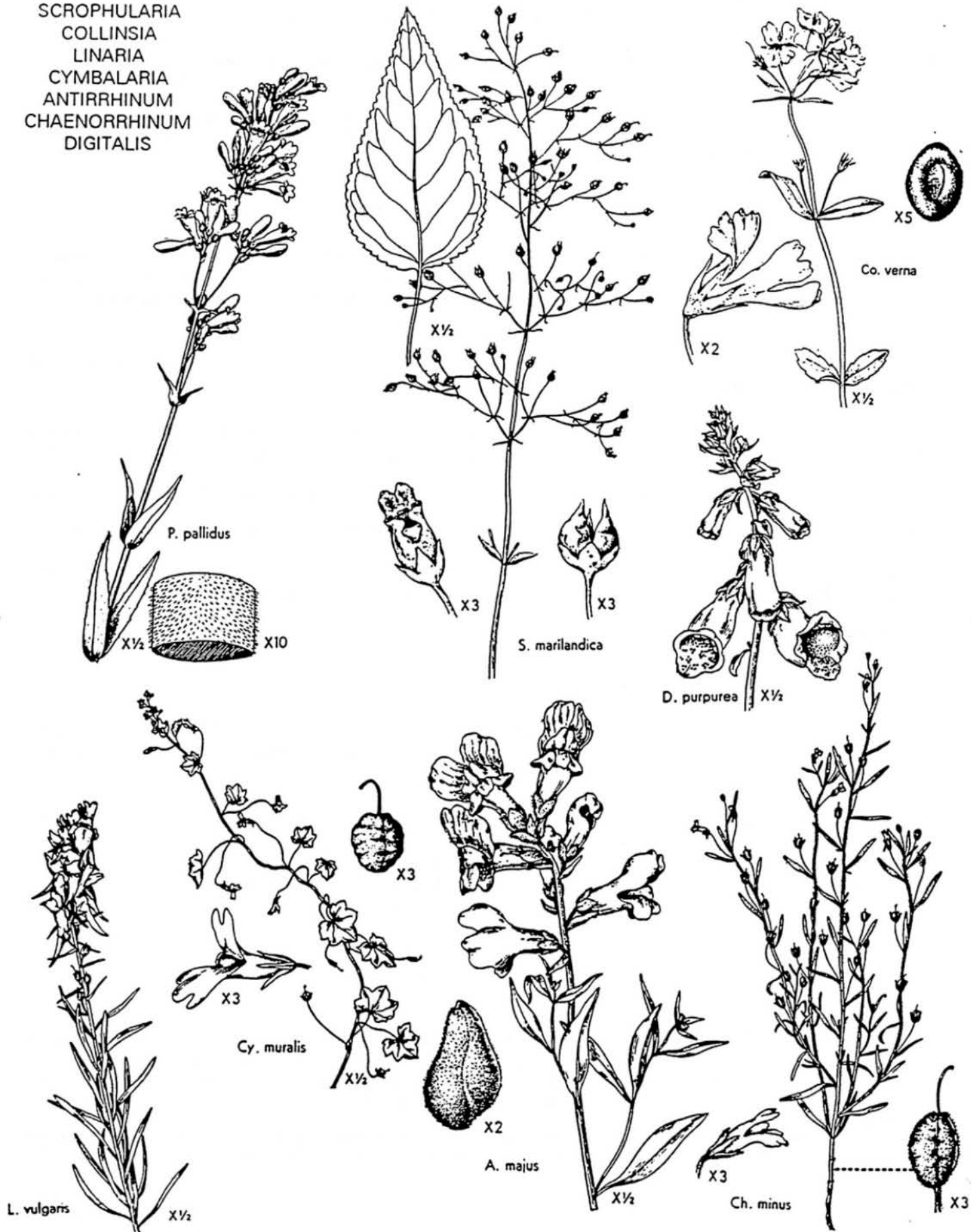
Hairy Beard-tongue

Stems pubescent; leaves opposite; inflorescence panicle-like; calyx deeply 5-lobed, lobes acuminate to attenuate, becoming somewhat recurved; corolla purple to whitish, lower lip arching upward against the upper lip.

REFERENCES: Riddell 1834:157 (*Penstemon pubescens*, slaty ravine); Sullivant 1840:39 (*Penstemon pubescens* Aiton); Craig 1890:93 (*Penstemon pubescens* Sol., Ernest Evans found this last summer in a meadow near the river, 10 Jun 1884, 30 May 1887); Selby & Craig 1890:13 (*Penstemon pubescens* Sol.); Cooperrider 1995:461 (illus. p. 462).

HERBARIUM RECORDS: Jun 1888—Cols., *Craig*; 2 Jun 1888—roadside along Scioto, *Selby*; 26 May 1892—Cols., *Werner*; May 1892—Villa, near Cols., *E. M. Wilcox*; 10 Oct 1902—Cols., *Sanders*; 3 Jun 1919—near Georgesville, *B. Taylor*; 11 Jun 1937—Upper Arlington, *J. H. Schaffner*; 15 Jun

PENSTEMON  
SCROPHULARIA  
COLLINSIA  
LINARIA  
CYMBALARIA  
ANTIRRHINUM  
CHAENORRHINUM  
DIGITALIS





1937—Upper Arlington, *J. H. Schaffner*, 19 Jun 1973—quarry 1 mi. S of Dublin, E side of Scioto R. along Rt. 33, Washington Twp., *Cahall & Roberts 3597*; 19 Jul 1977—W-facing slopes above Big Darby Creek, W of RR, NW of Orient, just N of Pickaway Co. line, Pleasant Twp., *Cusick 17032* (KE); 3 Jun 1980—W side of Rt. 33, limestone quarry, 3/4 mi. S of Rt. 161, Perry Twp., NW 1/4 NW Cols. Quad., *W. Carr 2874* (KE); 9 Jul 1982—Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, *G. Moore 302*; 22 May 1986—along the Scioto R., S 500 m from the intersection of Henderson Rd. & Rt. 33, Cols., *Taylor-Lehman 63*; 23 May 1986—Highbanks Metro Park (Delaware Co.), dry bluff tops, *Watts 310* (OS, OWU); 1 Jun 1986—lot N of St. Michael's Church, corner of Selby & High St., *Benkowski 68*; 28 May 1992—1 mi. S of Lane Rd., park area along E bank of Scioto R., Perry Twp., *Lowden 4967*.

2. †*Penstemon digitalis* Nutt.

Foxglove Beard-tongue

Stems glabrous (or with some lines of short pubescence) to slightly puberulent, shining or dull; leaves opposite, lanceolate to triangular, blades glabrous or puberulent beneath; leaf bases truncate to rounded or cordate-clasping; inflorescence panicle-like; calyx deeply 5-lobed, scarious-margined or not, lobes lanceolate to ovate, caudate-tipped; corolla 2-3 cm long, white or faintly purple outside, with purple lines within; anther usually with stiff white hairs on back. Syn.: *P. alluviorum* Pennell

REFERENCES: Selby & Craig 1890:13 (*Penstemon laevigatus* Sol. var. *digitalis* A.Gray, recently introduced from western states); Cooperrider 1995:458 (illus. p. 460).

HERBARIUM RECORDS: May 1888—Norwich Twp., J. Flynn, Cols., *Selby*; 1891—Cols., *Alger*; Summer 1938—OSU Botanical Gardens, *C. Jones*; 30 May 1964—uncultivated field, Truro Twp., *Weishaup*; 19 Jun 1973—quarry 1 mi. S of Dublin, E side of Scioto R. along Rt. 33, Washington Twp., *Cahall & Roberts 3596*; 24 Jun 1979—Tamarack Blvd., weedy field, 1/4 mi. N of Morse Rd., NW Cols. Quad., *Cusick 19425* (KE); 28 May 1982—Blendon Woods, *Owens*; 26 May 1986—N of Alkire Rd. & Gardner Rd., *Yang 203*; 31 May 1987—Highbanks Metro Park (Delaware Co.), *Higgins*; 6 Jun 1989—Turkey Run, between Olentangy River Rd. & Pegg Ave., just S of Highland Dr., Clinton Twp., *Lowden 4123*; 10 Jun 1990—along McOwen Rd. at jct. with Dixon Rd., Jefferson Twp., *Lowden 4384*; 13 Jun 1990—E. Broad St. (Rt. 16), 1/2 mi. W of the Franklin/Licking Co. Line, Jefferson Twp., *Lowden 4403*; 13 Jun 1990—W side of Waggoner Rd., 1 mi. S of Conrail & B&O RR tracks, open field, Jefferson Twp., *Lowden 4407*; 29 May 1991—Hoover Dam Park, W of Cabbage Rd., Blendon Twp., *Lowden 4645*; 15 Jun 1991—Knightsbridge Blvd., N of Henderson Rd. & W of Olentangy River Rd., Clinton Twp., *Lowden 4697*; 20 Jun 1991—Big Walnut Park, entrance off Livingston Ave., Truro Twp., *Lowden 4708*.

3. †*Penstemon pallidus* Small

Downy White Beard-tongue

REFERENCES: Robert & Cooperrider 1982:66; McCance 1984:A-323; Cooperrider 1995:461 (illus. p. 462).

NOTE: No specimens seen from Franklin Co. Cooperrider (1995) did not put a dot in Franklin Co. but he cites it as an additional record with reference to Pennell (1935).

9. SCROPHULARIA L. Figwort

Stem tall, erect, 4-angled; leaves opposite, serrate, ovate to lanceolate; flowers in large terminal panicles; calyx 5-lobed; corolla reddish-brown, 1 cm long or less, tube globose or ellipsoid, limb 2-lipped, middle lobe of lower lip reflexed, other lobes erect; stamens 4, usually included; vestigial stamen a flat scale on upper lip of corolla.

1. *Scrophularia marilandica* L.

Maryland Figwort

Flowering in late summer and autumn; stems glabrous below; leaves opposite, bases rounded; flowers in a panicle-like inflorescence; calyx 5-lobed; corolla dark maroon or reddish-brown, dull; vestigial stamen purple, usually longer than wide.

REFERENCES: Riddell 1834:157; Sullivant 1840:39; Craig 1890:93 (*Scrophularia nodosa* L. var. *marilandica* A.Gray; not common, grows sparingly on the island N of the road and elsewhere, 29 Jul 1888); Selby & Craig 1890:13 (*Scrophularia nodosa* L. var. *marilandica* A.Gray); Cooperrider 1995:454 (illus. p. 455).

HERBARIUM RECORDS: [date?]-Worthington, *J. Paddock Collection* (ILL); Aug 1888—Cols., *Craig*; 20 Jul 1890—Wyandotte Grove, *Selby*; 8 Aug 1890—Cols., *Werner*; Jun 1891—near Cols., *E. M. Wilcox*; 20 Aug 1892—Cols., *Bogue*; 17 Sep 1892—Neil's Run, near Cols., *E. M. Wilcox*; 16 Aug 1898—OSU Bot. Garden, *J. H. Schaffner*; Sep 1931—Red Hills, *Chapman*; 5 Aug 1979—W bank of Olentangy R. just N of Lane Ave. bridge, near Fawcett Center for Tomorrow, Cols., *W. Carr 1850*; 19 Aug 1982—Blendon Woods, *Owens*; 12 Jul 1986—along W bank of Olentangy R., just N of the Dodridge St. bridge, mesic forest on floodplain, *T. Lammers & Spooner 5955* (BHO, OS); 16 Jul 1990—Whetstone Park of Roses, along path behind Blenheim Rd., bus turn around, Clinton Twp., *Lowden 4448*; 31 Jul 1990—E bank of Olentangy R., walk path between Whetstone & Northmoor Parks, Clinton Twp., *Lowden 4463*.

10. COLLINSIA Nutt. Blue-eyed Mary

Stem slender; leaves opposite, ovate or lanceolate, lower petioled; flowers few or solitary in upper axils; corolla 1-1.5 cm long, tube gibbous on upper side, deeply 2-lipped, upper lip usually white or pale blue, lower lip bright blue or rarely rose-color, lower middle lobe enclosing the 4 stamens; vestigial stamen glandlike, near base of corolla; seeds usually 4.

1. *Collinsia verna* Nutt.

Blue-eyed Mary, Innocence

Stems erect or decumbent; leaves sessile, mostly opposite or the uppermost in whorls; flowers solitary in axils of upper leaves or in terminal umbel-like clusters; corolla bilabiate, lobes of lower lip blue to purple, upper lobes white.

REFERENCES: Riddell 1834:157 (open woods); Sullivant 1840:38; Craig 1890:93 (this pretty little plant used to grow on the island near the dike; it never was common, and since the island was cleared off it has become very rare, 17 Apr 1882, 5 May 1883, 10 May 1884, 24 May 1885, 28 Apr 1887, 29 Apr 1889); Selby & Craig 1890:13; Cooperrider 1995:452 (illus. p. 453).

HERBARIUM RECORDS: 1840—Cols., Sullivant; 19 Apr 1882—OSU, Cols., [Craig]; 26 Apr 1882—Olentangy R., OSU, W. Green; May 1890—Central College, Cols., Selby; 25 Apr 1891—Westerville, E. V. Wilcox (KE); May 1891—Georgesville, Selby (OS, WOOS); 1892—Franklin Co., Werner; 7 May 1892—Georgesville, Werner; 17 May 1892—Georgesville, near Cols., E. M. Wilcox; 27 May 1892—Georgesville, Werner (CLM); 12 May 1894—Georgesville, W. Kellerman; 16 May 1962—Camp Jackerley [Camp Kenjockety, Girl Scout Camp, off Rt. 40, Big Darby Creek], Bartley.

11. LINARIA Mill. Toadflax

Erect, usually glabrous; leaves narrow, entire, upper alternate, lower and those of basal shoots often opposite or whorled; flowers bracted in terminal racemes; corolla spurred, 2-lipped; lower lip with palate or ridges; stamens 4, included.

a Leaves linear, narrowed to a petiole-like base. 1. *L. vulgaris*

a' Leaves ovate or lance-ovate, broadest near the sessile, somewhat clasping, obtuse to rounded base. 2. *L. dalmatica*

1. \**Linaria vulgaris* Mill.

Toadflax, Butter-and-eggs

Naturalized (native of Europe)

Plants glabrous; upper leaves mostly alternate, lower leaves subopposite; blades linear to linear-lanceolate; calyx 5-lobed; corolla yellow with orange palate, spurred, approx. 3.0 cm long (incl. spur).

REFERENCES: Craig 1890:54, 93 (this also has been recently introduced, as up to two years ago I had found none on the farm, although Mr. Devol found a specimen in 1882; last summer there was a small clump on Neil Ave. just N of the gate; it is not common in the vicinity of Cols.; 20 Jul 1887, 12 Jun 1888, University Farm Sep & Oct 1887); Selby & Craig 1890:13 (introduced); Cooperrider 1995:450 (illus. p. 453).

HERBARIUM RECORDS: 21 Aug 1882—OSU farm, Cols., Devol; 8 Sep 1890—Cols., Hine; 20 Jun 1924—Franklin Co., R. Crane (OWU); 22 Jul 1992—Quarry off Rt. 33, W of Riverside Green entrance, E side of Scioto R., approx. ½ mi. S of Rt. 161, Perry Twp., Lowden 4997.

2. \**Linaria dalmatica* (L.) Mill.

Dalmatian Toadflax

Adventive (native of E Mediterranean region)

Plants glabrous; leaves alternate, entire, ovate-lanceolate; blades sessile, bases somewhat clasping stems; corolla spurred, yellow with orange palate, approx. 3.5 cm long (incl. spur).

REFERENCE: Cooperrider 1995:448.

HERBARIUM RECORD: 28 May 1935—N of Worthington, in alfalfa field, C. Jones.

12. CYMBALARIA Hill Kenilworth Ivy

Stem trailing, rooting at nodes; leaves alternate, palmately veined, nearly circular, shallowly lobed; flowers on long slender peduncles solitary in axils; corolla 1 cm long or less, blue with yellow palate, 2-lipped; spur short; stamens 4, included; capsule opening by 2 pores.

1. \**Cymbalaria muralis* P.Gaertn., B.Mey. & Scherb.

Kenilworth Ivy

Naturalized (native of Eurasia)

Plants glabrous, trailing, vine-like; leaves alternate, shallowly palmately lobed, palmately veined, ivy-like; flowers solitary in leaf axils, borne on elongated peduncles; calyx deeply 5-lobed; corolla bilabiate, purple to blue, spurred, throat closed by a yellow palate.

REFERENCE: Cooperrider 1995:447 (illus. p. 453).

HERBARIUM RECORDS: May 1931—Fishingers Bridge, Ireland, Jr.; 14 Jun 1969—SE corner of Beck St. & City Park Ave. intersection, German Village, Cols., Cooperrider (KE); 8 Jul 1979—abandoned limestone quarry, E bank of Scioto R., about 1 mi. S of Dublin on Rt. 33, W. Carr 1758; 28 Jul 1979—idle limestone quarry on E bank of Scioto R., 1 mi. S of Dublin on Rt. 33, W. Carr 1758; 26 Jun 1991—E bank of Scioto R., trailing along rocks, just N of Trabue-Murphy Landing, Fishingers Rd. bridge, Perry Twp., Lowden 4742.

13. ANTIRRHINUM L. Snapdragon

Leaves opposite or upper alternate, lanceolate, entire; flowers showy, in terminal racemes; corolla variously colored, 2-4 cm long, 2-lipped, palate prominent, tube gibbous at base on lower side; stamens 4; capsule asymmetric, opening by pores.

1. \**Antirrhinum majus* L.

Common Snapdragon

Cultivated (native of the Mediterranean region)

NOTE: Commonly cultivated in gardens. Not mapped for Franklin Co. by Cooperrider 1995:451.

14. CHAENORRHINUM Rchb.

Glandular-pubescent, much-branched; leaves narrow, obtuse, 1-2 cm long, lower opposite, others alternate; flowers solitary in axils, pediceled; corolla 5-8 mm long, blue-purple with yellow palate, 2-lipped, spurred; stamens 4; capsule pubescent, carpels unequal, each opening by terminal pore.

1. \**Chaenorrhinum minus* (L.) Lange

Lesser Toadflax

Naturalized (native of Europe)

Stems pubescent; upper leaves alternate, blades linear to spatulate; calyx deeply 5-lobed; corolla spurred, purple-bluish white.

REFERENCE: Cooperrider 1995:451 (illus. p. 453).

HERBARIUM RECORDS: 22 Jun 1936—along RR, Perry Twp., *J. H. Schaffner*; 21 Jun 1937—N Cols., *J. H. Schaffner*; 4 Jul 1979—Northland Shopping Center, weed in flower beds, Morse Rd., NW Cols. Quad., *Cusick 19458* (KE); 1 Jun 1980—common in cinders along RR tracts on N side of McKinley Ave., about 2 blks. W of Souder St., NE ¼ SW Cols. Quad., *W. Carr 2858*; 1 Jun 1980—abundant in limestone RR bed, 1 blk. E of N 4th St., between Hudson St. & 17th Ave., SW corner NE Cols. Quad., *W. Carr 2865* (MU); 23 Jun 1987—along the Chesapeake & Ohio RR tracks at the Bethel Rd. overpass, Perry Twp., *T. Lammers & Lewis 6131*; 11 Jun 1989—along RR tracks off Highland Dr., W of Olentangy River Rd. & S of Henderson Rd., Clinton Twp., *Lowden 4137*; 10 Jul 1990—along RR tracks, jct. of Lazelle Rd. with Flint Rd., Sharon Twp., *Lowden 4437*; 23 May 1991—OSU campus, SE corner of Ladies' Field House, *Stuckey*; 31 Aug 1992—S end of Cleveland Ave. at I-670, waste areas along abandoned RR tracks, just S of First Ave., Franklin Twp., SE Cols. Quad., *McCormac 4858*.

15. DIGITALIS L. Foxglove

Tall; leaves alternate; flowers large and showy, in terminal, sometimes 1-sided, racemes; corolla tube somewhat inflated, limb short, or one lobe sometimes much prolonged; stamens 4, included.

1. \**Digitalis purpurea* L.

Common Foxglove

Cultivated (native of Europe)

Blades crenate; calyx not woolly, lobes ovate to broadly elliptic; corolla 4.0-5.5 cm long, red-purple to white, spotted with dark purple, lobes all short.

HERBARIUM RECORD: 26 May 1982—OSU, Cols., W end of Waterman farm complex, Kenny Rd., growing in small flower garden, *D. Wilson 57*.

NOTE: Not reported for Franklin Co. by Cooperrider 1995:469.

16. DASISTOMA Raf. Mullein-foxglove

Erect; leaves opposite, the lower large, twice pinnatifid, smaller and less divided upward, uppermost lanceolate and entire; flowers sessile or nearly so, solitary in axils of upper leaves, hence in leafy or bracted spikes; corolla yellow, tube about 1 cm long, pubescent within, slightly longer than the 5 rounded nearly equal lobes; stamens 4, not quite equal, on middle of corolla tube, anther glabrous, filaments short, villous; pollen-sacs not awned at bases.

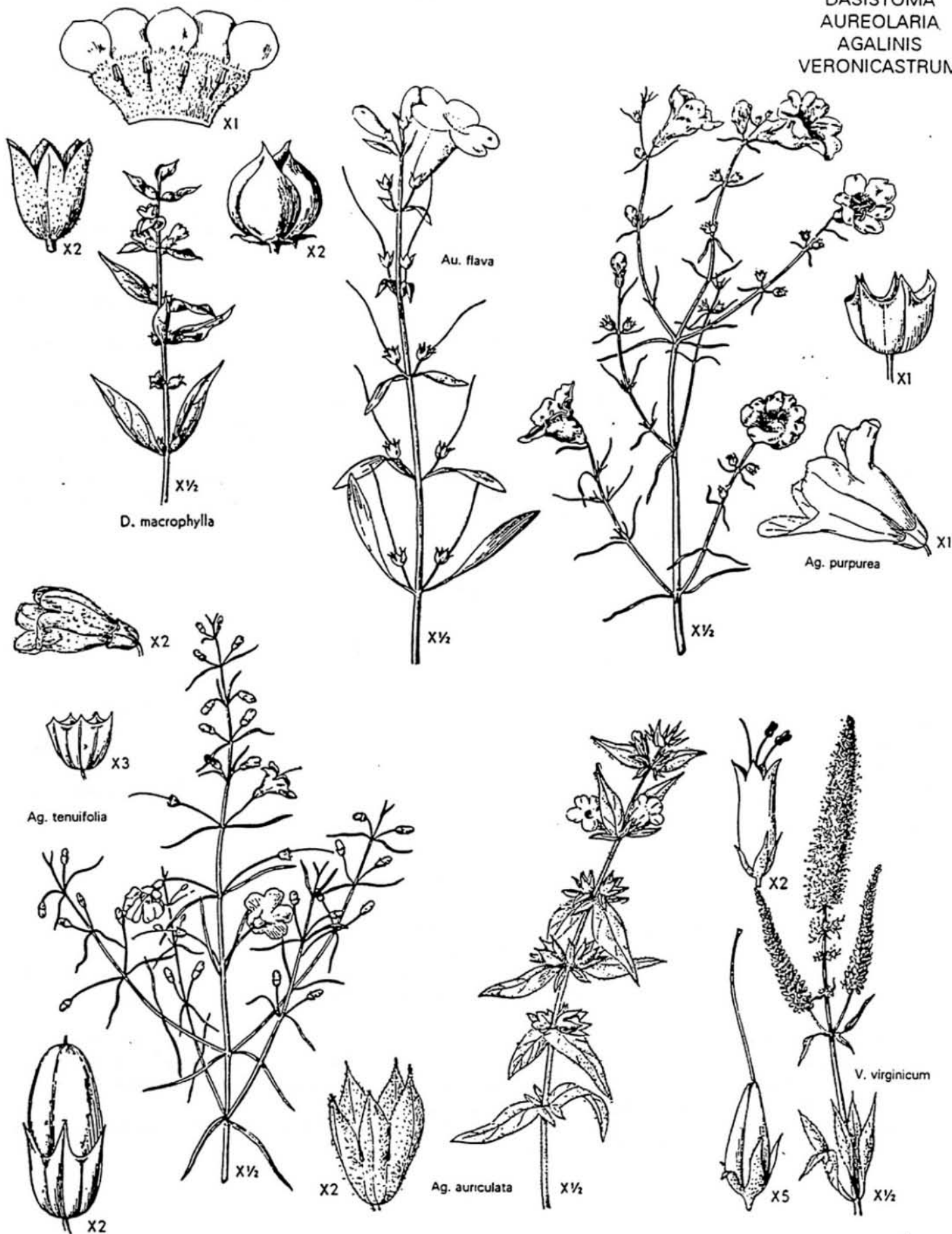
1. *Dasistoma macrophylla* (Nutt.) Raf.

Mullein Foxglove

Plants blackening when dried, stems hollow; leaves opposite, lower leaves deeply pinnatifid, upper leaves less dissected and narrowly lanceolate; flowers nearly sessile, solitary in axils of upper reduced leaves; corolla yellow, nearly actinomorphic. Stream banks & woodlands. Syn.: *Seymeria macrophylla* Nutt.

REFERENCES: Sullivant 1840:39; Craig 1890:94 (found on the farm along the river by Mr. W. J. Green, 27 Jul 1882, and has not been reported since); Selby & Craig 1890:13; Cooperrider 1995:481 (illus. p. 487).

DASISTOMA  
AUREOLARIA  
AGALINIS  
VERONICASTRUM



HERBARIUM RECORDS: [date?]-Cols., *Devol*; 29 Jul 1882-Cols., *W. Green*; 29 Jul 1882-Olentangy R., [coll.?]; 20 Jul 1890-Scioto R., *Selby*; Aug 1892-Cols., *Werner*; 2 Sep 1892-Cols., *Werner* (CLM); 24 Sep 1892-Georgesville, *Werner*; 19 Jul 1977-Big Darby Creek, woods borders & slopes, W of RR, NW of Orient, just N of Pickaway Co. line, Pleasant Twp., *Cusick 17031* (KE); 31 Jul 1990-Hayden Falls, just W of Scioto R. off Hayden Run Rd., Norwich Twp., *Lowden 4472*; 20 Jun 1991-Big Walnut Park, entrance off Livingston Ave., Truro Twp., *Lowden 4707*; 23 Jun 1991-E bank of Scioto R., from Lane Rd. to Lane Ave., Perry Twp., *Lowden 4720*.

### 17. AUREOLARIA Raf. False foxglove

Stems glabrous or pubescent; leaf blades broader than linear, not auricled at base; calyx and capsule glabrous, pubescent, or glandular puberulent; corolla irregular, yellow; stamens 4, lowest pair longest; anthers pubescent, pollen-sacs awned at base.

#### 1. *Aureolaria flava* (L.) Farw.

Smooth False Foxglove

Stem glaucous and glabrous; leaves mostly opposite; blades of lower leaves deeply lobed or incised; pedicels approx. 4-7 mm long, in anthesis mostly longer than calyx; calyx glabrous; corolla yellow, approx. 4.5-5 cm long; stamens 4 and didynamous; capsule glabrous. Syn.: *Gerardia flava* L., *G. quercifolia* Pursh

REFERENCES: Riddell 1834:157 (*Gerardia glauca*); Sullivant 1840:38 (*Gerardia glauca* Eddy); Selby & Craig 1890:13 (#577 & 579).

HERBARIUM RECORDS: 1840-Cols., *Sullivant*; 18 Aug 1982-Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, *G. Moore 299*.

NOTE: Sullivant's specimen labeled *Gerardia glauca* belongs here. Not mapped for Franklin Co. by Cooperrider 1995:488 (illus. p. 489).

### 18. AGALINIS Raf.

Leaves opposite or upper ones alternate; flowers in axils of upper leaves or bracts, hence in leafy or bracted spikes or racemes; calyx 5-lobed or 5-toothed; corolla large, showy, tube campanulate, lobes nearly equal; stamens 4, filaments usually pubescent; style elongate. (*Gerardia*, misapplied.)

a Blades linear, not auricled at base; flowers pediceled.

b Pedicels shorter than the calyx. 1. *A. purpurea*

b' Pedicels or most of them longer than the calyx. 2. *A. tenuifolia*

a' Blades lanceolate, sessile, at least some with basal auricles; flowers sessile; calyx lobes longer than tube.

3. *A. auriculata*

#### 1. *Agalinis purpurea* (L.) Pennell var. *purpurea*

Purple Foxglove, Purple Gerardia, Purple Agalinis

Plants often darkening upon drying; leaves opposite, linear to filiform; peduncles shorter than to equaling length of calyx; sinuses between calyx lobes broadly U-shaped, almost quadrate; corolla pinkish-purple, usually 2 cm long or more; style 1.5 cm long or more. Syn.: *Gerardia purpurea* L. var. *purpurea*

REFERENCES: Sullivant 1840:38; Selby & Craig 1890:13; Cooperrider 1995:482 (illus. p. 485).

HERBARIUM RECORD: 17 Sep 1892-Cols., *Werner* (CLM, OS).

#### 2. *Agalinis tenuifolia* (M.Vahl) Raf. var. *tenuifolia*

Slender Gerardia, Slender Agalinis

Plants green to purple when fresh, often darkening upon drying; stems glabrous or nearly so, spreading; leaves linear, subopposite, less than 3.5 mm wide; peduncles twice or more than twice as long as calyx; calyx tube thick, not reticulate-veined, lobes less than 1 mm long; corolla purple-pink to white. Syn.: *Gerardia tenuifolia* Vahl var. *tenuifolia*

REFERENCES: Riddell 1834:157 (dry prairies); Sullivant 1840:38; Craig 1890:54, 94 (common in moist situations E of the island, 17 Aug 1882, 28 Aug 1887, University Farm Sep 1887); Selby & Craig 1890:13; Cooperrider 1995:484 (illus. p. 485).

HERBARIUM RECORDS: 18 Aug 1882-Olentangy R., *W. Green*; 14 Aug 1890-Cols., *Werner* (CLM); 30 Aug 1890-OSU Farm, Cols., *Selby*; 9 Sep 1890-N Cols., *E. V. Wilcox* (KE); 17 Aug 1891-near Cols., *E. M. Wilcox*; Sep 1891-Cols., *E. M. Wilcox*; 3 Oct 1891-Big Darby R., *Selby*; 7 Sep 1892-Scioto R., Cols., *W. Kellerman*; 26 Aug 1982-Blendon Woods, along Day Camp Rd., *Owens*; 30 Aug 1982-E side of Hoover Reservoir, 0.1 mi. W of Cabbage Rd. & ½ mi. N of Jct. of Central College Rd., openings in brushy field, Blendon Twp., New Albany Quad., *Cusick 22051*; 22 Aug 1990-Quarry Place, E side of Scioto R. off Rt. 33 just S of Rt. 161, Perry Twp., *Lowden 4559*; 3 Sep 1992-W side of Cabbage Rd., locally common in dry openings in brushy field, approx. ½ mi. S of Walnut St., Blendon Twp., New Albany Quad., *McCormac 4897*.

#### 3. †*Agalinis auriculata* (Michx.) S.F.Blake

Ear-leaf Foxglove

Syn.: *Gerardia auriculata* Michx., *Tomanthera auriculata* (Michx.) Raf.

REFERENCES: Sullivant 1840:38; Selby & Craig 1890:13.

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Cooperrider 1995:486 (illus. p. 487).

19. VERONICASTRUM Fabr. Culver's Root

Tall, erect; leaves in whorls of 3-6, lanceolate, sharply serrate, acuminate; flowers in paniced dense spikelike racemes; calyx 4-5-parted; corolla almost regular, tube longer than the 4 lobes, usually white; stamens 2, long-exsert; capsule dehiscent by 4 terminal slits.

1. *Veronicastrum virginicum* (L.) Farw.

Culver's Root

Syn.: *Leptandra virginica* L., *Veronica virginica* L.

REFERENCES: Riddell 1834:157 (dry prairies); Sullivant 1840:38; Selby & Craig 1890:13; Selby 1892a:111 (#601 Re-collections); Cooperrider 1995:471 (illus. p. 470).

NOTE: No specimens seen from Franklin Co.

20. VERONICA L. Speedwell

Foliage leaves opposite or rarely whorled, bracteal leaves usually alternate; flowers axillary and solitary or in racemes; calyx usually 4-, rarely 5-, parted; corolla blue, pink, or white, tube short, limb rotate, 4-lobed, slightly zygomorphic; stamens 2, one on each side of upper corolla-lobe, exserted; capsule usually flattened and notched at top; style and sepals persistent.

- a Raceme terminal on main stem, bracts alternate; or flowers in axils of alternate leaves which may be like foliage leaves or smaller.
  - b Flower-stalks shorter than subtending bracts.
    - c Blades lanceolate, acuminate, sharply serrate, 4-10 cm long; style twice as long as capsule; raceme dense.
      - 1. *V. longifolia*
    - c' Blades 1-3 cm long; style not twice as long as capsule.
      - d Corolla white or pale blue, sometimes with darker streaks; leaves oblong, glabrous or somewhat pubescent.
        - e Corolla pale with darker stripes; calyx lobes elliptic, about equaling pedicels; style longer than depth of notch of capsule; hairs of stem short, upcurved. 2. *V. serpyllifolia*
        - e' Corolla white or pale blue; calyx lobes oblanceolate, longer than pedicels; style very short. 3. *V. peregrina*
      - d' Corolla dark blue; leaves ovate, toothed, palmately veined; sepals unequal; capsule pubescent, deeply notched; style as long as depth of notch or a little more; whole plant pubescent. 4. *V. arvensis*
  - b' Flower-stalks equaling or longer than subtending bracts, bracts like foliage leaves but sometimes smaller; capsule wider than long.
    - f Blades cordate-orbicular to reniform, slightly toothed, mostly under 1 cm, short-petioled; trailing perennial, rhizomes slender, rooting at nodes; rarely or never fruiting. 7. *V. filiformis*
    - f' Blades crenate-serrate, short-petioled; sepals lance-ovate; capsule flattened, notched; sepals evidently 3-nerved.
      - g Capsule 7 mm wide or more, with wide triangular notch; style longer than depth of notch; pedicels in fruit usually more than 1.3 cm long. 6. *V. persica*
      - g' Capsule about 5 mm wide, lobes rounded to notch; style equaling or exceeding depth of notch; pedicels in fruit usually less than 1.3 cm long. 5. *V. polita*
- a' Racemes axillary or on branches, not terminal on main stem; leaves opposite.
  - h Calyx 5-lobed, lobes unequal; leaf-blades sessile. 9. *V. teucrium*
  - h' Calyx 4-lobed.
    - i Stem pubescent, prostrate or flowering branches erect; blades short, not more than twice as long as wide, toothed; of dry habitats. 8. *V. officinalis*
    - i' Stem glabrous or somewhat pubescent above; plants of wet habitats.
      - j Blades petioled, ovate or ovate-lanceolate, serrate; capsule thick, a little wider than long, not notched.
        - k Leaves broadest near base; style 2.5-3.5 mm long. 10. *V. americana*
        - k' Leaves broadest near or above the middle; style 1.8-2.2 mm long. 11. *V. beccabunga*
      - j' Blades of flowering stems sessile, entire or teeth low or remote.

- 1 Blades linear to lance-linear, narrowed to base; capsule flat, wider than long, notched, much longer than calyx. 13. *V. scutellata*  
1' Blades wider, upper sometimes clasping; calyx and capsule nearly equal in length. 12. *V. anagallis-aquatica*

1. \**Veronica longifolia* L.

Garden Speedwell

Cultivated (native of Europe)

Plants pubescent; main stem erect and terminated with an inflorescence; leaves opposite or 3 in a whorl; blades lance-ovate, dentate.

HERBARIUM RECORD: 20 Jun 1930—OSU, cult., Hicks.

NOTE: Not reported for Franklin Co. by Cooperrider 1995:471.

2. \**Veronica serpyllifolia* L.

Thyme-leaved Speedwell

Naturalized (native of Europe)

Stems pubescent, forming mats; leaves opposite, ovate to oblong, sessile to petiolate; flowers in elongated terminal raceme, appearing to be solitary in the axils of reduced upper leaves, pedicels 2-4 mm long; corolla pale purple; capsules pubescent.

REFERENCES: Riddell 1834:156 (the bed of small rivulets); Sullivant 1840:39; Craig 1890:94 (in cultivated ground, common N of the garden and W of the seed barn, 30 Apr 1882, 22 May 1885, 10 Jul 1887); Selby & Craig 1890:13; Cooperrider 1995:474 (illus. p. 480).

HERBARIUM RECORDS: 1890—Cols., Selby; Jun 1891—Franklin Co., Selby (OS, This specimen is mixed and filed with *Veronica arvensis*); 1892—Franklin Co., Werner; May 1921—Westerville, Otterbein campus, open lawn, J. Wilson; 31 May 1922—Westerville, Otterbein campus, lawn, Gamertsfelder; 31 May 1922—Westerville, Otterbein campus, lawn weed, Knapp; 21 May 1923—Westerville, E. L. Moore; 9 May 1970—Wolf Park, frequent in open grassy field, Boone 124; 2 May 1983—Blendon Woods, Owens; 25 Apr 1986—front of 6887 Hayhurst, Worthington, Benkowski 16; 27 Apr 1986—Highbanks Metro Park, open field, day camp area, Witsberger 891 (OS, OWU); 30 Apr 1990—Highbanks Metro Park (Delaware Co.), lawn weed in Oak Coves picnic area, Watts 512 (OS, OWU).

3. *Veronica peregrina* L. var. *peregrina*

Purslane Speedwell, Neckweed

Plants erect to ascending, glabrous, somewhat succulent; lower leaves opposite, petiolate, spatulate, upper leaves alternate, reduced, oblong to linear-oblong, sessile; flowers solitary in leaf axils, pedicels not more than 1 mm long; calyx lobes nearly equal; corolla white, exceeded by calyx; capsules glabrous.

REFERENCES: Riddell 1834:157 (cultivated fields); Sullivant 1840:39; Craig 1890:94 (in same localities as *Veronica serpyllifolia* L., but rarer, 12 May 1884, 7 May 1887, 10 May 1888, 29 Apr 1889); Selby & Craig 1890:13; Cooperrider 1995:477 (illus. p. 480).

HERBARIUM RECORDS: 6 Jun 1882—OSU, clover meadow, Devol; Spring 1889—Cols., Craig; 22 May 1897—Cols., W. Kellerman; 23 May 1963—OSU, waste place beside sewage disposal plant, Cusick; 9 May 1970—Wolf Park, frequent in open grassy field, Boone 125; 15 May 1989—along Highland Dr. RR tracks, W of Olentangy River Rd. & S of Henderson Rd., Clinton Twp., Lowden 4054 & 4055; 16 May 1989—along Highland Dr. RR tracks, W of Olentangy River Rd. & S of Henderson Rd., Clinton Twp., Lowden 4067; 11 Apr 1991—OSU campus, 11th Ave. half way between High St. & Neil Ave., Stuckey; 23 Sep 1991—E bank of Scioto R., just N of I-270, Hamilton Twp., SW Cols. Quad., McCormac 4347.

NOTE: According to Allison W. Cusick (pers. comm.), var. *xalapensis* (Humb., Bonpl. & Kunth) St. John & Warren is found in Franklin Co. This variety has short glandular-tipped hairs on the fruits, sepals and stems.

4. \**Veronica arvensis* L.

Corn Speedwell

Naturalized (native of Eurasia)

Stems villous-pubescent; lower leaves ovate, pubescent; flowers solitary in axils of bracts, sessile or on short peduncles to 1 mm long; calyx lobes pubescent, lower pair longer than upper pair; corolla blue; capsules pubescent, as wide as long, notched.

REFERENCES: Riddell 1834:157 (cultivated fields); Sullivant 1840:39 (naturalized plants); Craig 1890:94 (common on the campus and in pastures, 30 Apr 1882, 7 Jun 1884, 10 May 1887; several specimens of a depauperate form were found this spring on the hillside just W of the horticultural hall); Selby & Craig 1890:13 (introduced); Cooperrider 1995:479 (illus. p. 480).

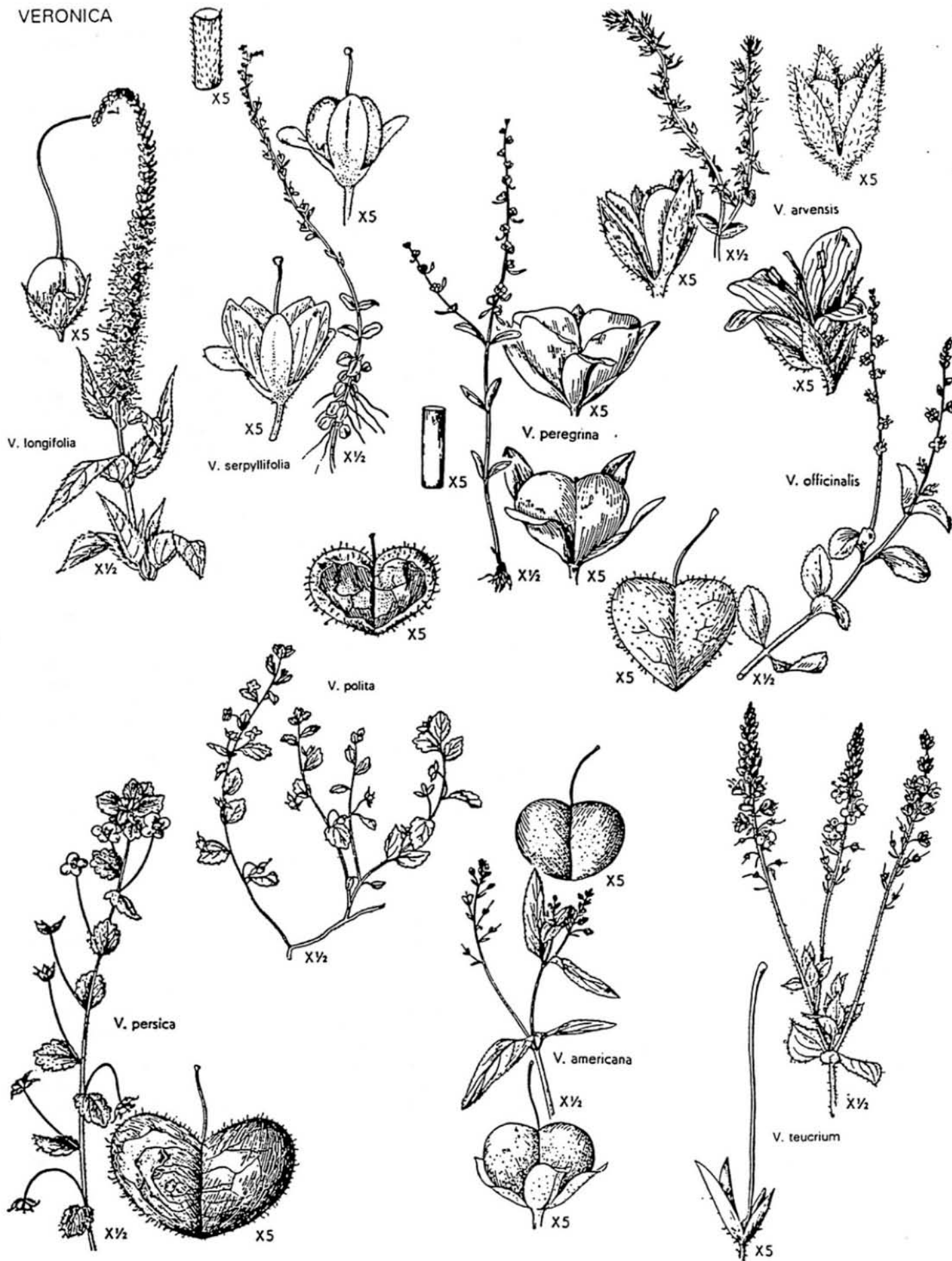
HERBARIUM RECORDS: 1890—Haydens Falls, Selby; Jun 1891—Franklin Co., Selby; 24 May 1922—Westerville, Otterbein campus, Jackson; 4 Jun 1923—Westerville, open field, Carlson; May 1924—Westerville, Otterbein campus, Wallace; 17 Jun 1940—Franklin Co., D. Brown; 24 May 1963—behind Boulevard Garden Nursery on Olentangy River Rd., waste place, Cusick; 18 Apr 1966—mowed area adjacent to Battelle greenhouse, Kenny Rd. no. 2075, Clinton Twp., Anderson; 15 Apr 1986—OSU Oval, Cols., Blanco; 10 May 1986—Highbanks Metro Park (Delaware Co.), open field, Witsberger 905 (OWU); 10 May 1986—Highbanks Metro Park (Delaware Co.), open farm areas, Powell Rd., 2/3 mi. W of Rt. 23 & 1/3 mi. E of Rt. 315, Witsberger; 15 May 1989—Highland Dr., along RR tracks, W of Olentangy River Rd. & S of Henderson Rd., Clinton Twp., Lowden 4051; 29 Apr 1990—Highbanks Metro Park (Delaware Co.), lawn weed, Oak Coves picnic area, Watts 510; 19 May 1990—along N side of Morse Rd. at Franklin/Licking Co. Line, Plain Twp., Lowden 4326; 26 May 1993—Northmoor Park, lawn E of Olentangy R., Clintonville, Clinton Twp., Lowden 5044.

5. \**Veronica polita* Fr.

Wayside Speedwell

Naturalized (native of Eurasia)

VERONICA





Stems erect to ascending, pubescent; lowest leaves opposite, often alternate, petiolate, rounded to truncate at base; flowers solitary in leaf axils; peduncles less than 13 mm long; corolla white to blue, with purple veins; capsules pubescent, lobes rounded, not widely spreading, style just surpassing capsule lobes.

REFERENCE: Cooperrider 1995:479 (illus. p. 483).

HERBARIUM RECORDS: 16 Apr 1970—Charing Dr., Upper Arlington, abundant in patches in lawns, *Boone* 5; 30 Apr 1980—picnic area on S side of Hayden Run Rd., just W of Scioto R., common lawn weed, Norwich Twp., WC edge NW Cols. Quad., *W. Carr* 2652 (KE, OS); 21 Mar 1990—Schiller Park, N of Deshler Ave., lawn weed, SE Cols. Quad., *Cusick* 28696; 4 Mar 1992—Northmoor Park, lawn near E bank of Olentangy R., Clintonville, Clinton Twp., *Lowden* 4888; 26 May 1993—Northmoor Park, lawn near E bank of Olentangy R., Clintonville, Clinton Twp., *Lowden* 5045.

6. *\*Veronica persica* Poir.

Cat's-eye Speedwell, Bird's-eye Speedwell

Naturalized (native of SW Asia)

Plants pubescent; leaves ovate, alternate, lowest opposite and petiolate, upper subsessile; blades longer than wide; flowers solitary in axils, peduncles more than 15 mm long; corolla blue with darker lines; capsules reticulate-veined, broadly notched, lobes wide-spreading, ciliate, acutish.

REFERENCE: Cooperrider 1995:481 (illus. p. 483).

HERBARIUM RECORDS: May 1893—Cols., *MacFadden*; 10 May 1894—OSU campus, Cols., *W. Kellerman*; 17 May 1981—Oakland Nursery, NW of Atwood Terrace & Oakland Park Ave., weedy areas, NE Cols. Quad., *Cusick* 20658; 9 May 1991—OSU campus, Cols., *Stuckey*.

NOTE: The reference to *Veronica agrestis* L. made by Werner 1893:93 (Cols., *McFadden*, member class in preparatory botany, OSU, spring 1893) belongs here.

7. *\*Veronica filiformis* Sm.

Blue-eyed Speedwell, Slender Speedwell

Adventive (native of Eurasia)

Plants pubescent, prostrate; leaves petiolate, opposite below and alternate above; blades wider than long, reniform to cordate-orbicular; flowers solitary in leaf axils; peduncles more than 15 mm long; corolla blue.

REFERENCE: Cooperrider 1995:479 (illus. p. 480).

HERBARIUM RECORD: 21 Apr 1942—Cols., *E. Miller*.

8. *\*Veronica officinalis* L.

Common Speedwell

Naturalized (native of Europe)

Stems pubescent, creeping, rooted at nodes; leaves opposite, petiolate, elliptic to obovate, narrowed to base; flowering racemes all axillary; pedicels short, less than 1½ times the length of the calyx; corolla blue-purple, about 5 mm wide; capsules glandular-pubescent, much exceeding the calyx.

REFERENCES: Riddell 1834:156; Sullivant 1840:39 (naturalized plants); Craig 1890:94 (common in the SW part of the woods and occasionally found on the campus); Selby & Craig 1890:13; Cooperrider 1995:474 (illus. p. 476).

HERBARIUM RECORDS: 1892—Canal Winchester, *Selby*; 6 May 1892—Georgesville, *Werner*; 30 May 1896—Reservoir Park, *M. Wright*; 27 May 1922—Westerville, dry bank, *Cummings*; 27 May 1922—Westerville, open woods & fields, *Detamore*; 2 Jun 1922—Westerville, dry bank, *Elliott*; 12 Jun 1982—Blendon Woods, edge of Rd. to reserved picnic area, *Owens*; 23 May 1990—entrance to Hoover Dam Park off Cabbage Rd., open cut area, Blendon Twp., *Lowden* 4339; 3 Sep 1992—N side of Rt. 161 just E of Blacklick Creek, occasional on weedy roadside, Plain Twp., New Albany Quad., *McCormac* 4886; 29 May & 12 Jun 1993—Camp Mary Orton, weedy lawn area near caretaker's house, N of Worthington, W on Rt. 23, Sharon Twp., *Lowden* 5046 & 5077.

9. *\*Veronica teucrium* L.

Garden Speedwell

Adventive (native of Eurasia)

Stems pubescent; leaves lanceolate, margins entire to dentate; flowers in racemes borne in axils; calyx 5-lobed, unequal; corolla blue. Syn.: *V. latifolia* L., perhaps misapplied

HERBARIUM RECORD: 10 Jun 1983—Union Cemetery (S unit), near the intersection of Olentangy River Rd. & Dodridge St., naturalized in blue-grass turf, Cols., *T. Lammers* 5102 (BHO, OS).

NOTE: Not reported for Franklin Co. by Cooperrider 1995:471.

10. *Veronica americana* (Raf.) Schwein.

American Speedwell

REFERENCES: Craig 1890:54, 94 (along the bank of the lake and near the brook, 8 Jul 1887, University Farm Sep 1887); Selby & Craig 1890:13.

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Cooperrider 1995:475 (illus. p. 476).

11. *\*Veronica beccabunga* L.

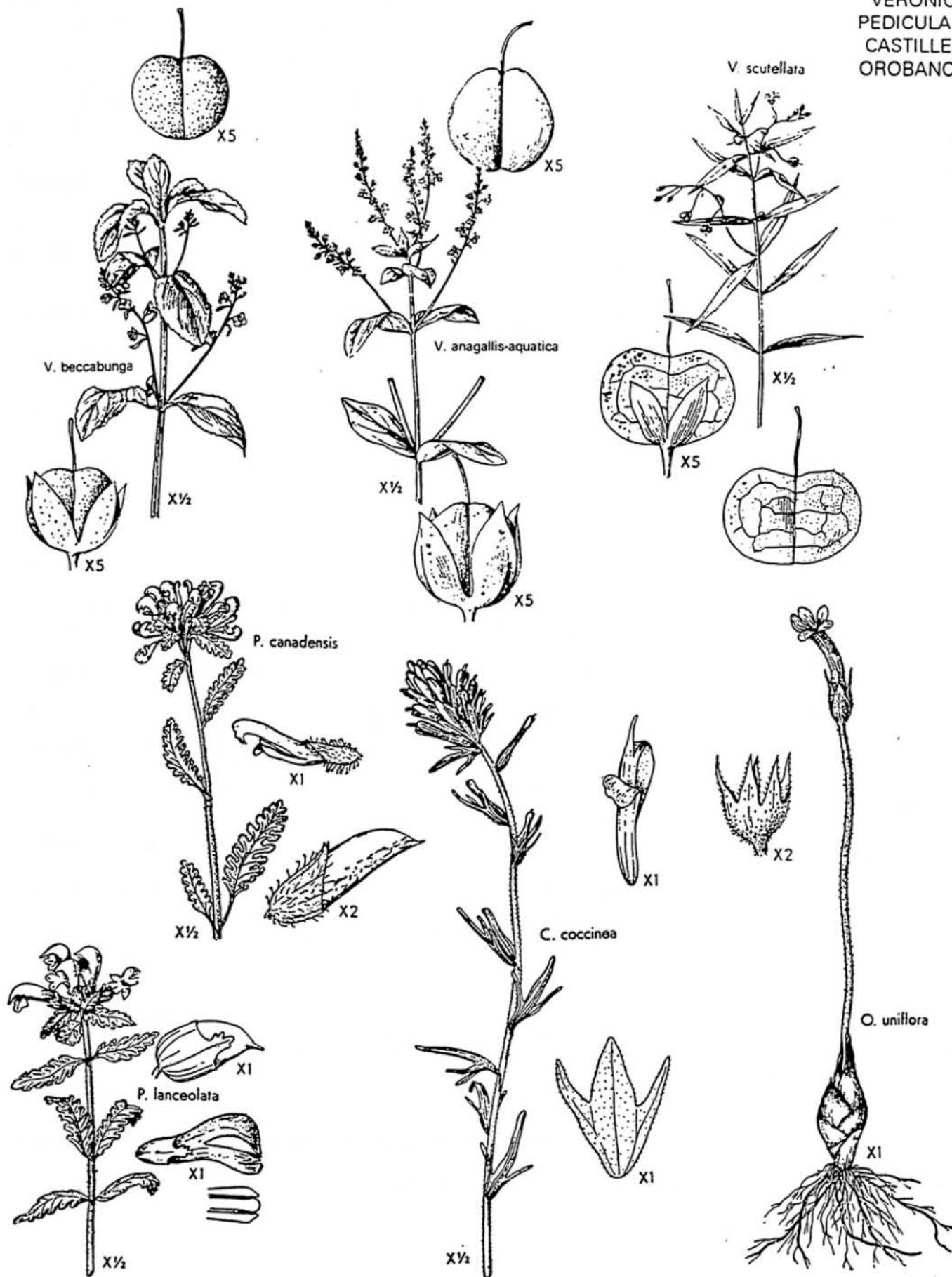
European Brooklime

Naturalized (native of Eurasia)

Stems glabrous, leaves opposite, petiolate; blades ovate, rounded at apex, margin subentire; racemes borne in upper axils; corolla blue.

REFERENCES: Sullivant 1840:39; Les and Stuckey 1985; Cooperrider 1995:475 (illus. p. 476).

VERONICA  
PEDICULARIS  
CASTILLEJA  
OROBANCHE



HERBARIUM RECORDS: 29 Oct 1982—small island in Olentangy R. just SE of Fawcett Center, mud-flat, *Les 331*; 3 Nov 1982—muddy banks of Olentangy R., due E of Antrim Park lake, *Stuckey & Les 333*; 5 Jul 1991—E bank of Olentangy R., OSU campus, just S of Lane Ave. bridge, Clinton Twp., *Lowden 4757* (only specimen seen in flower).

12. †*Veronica anagallis-aquatica* L.

Brook-pimpernel, Water Speedwell

Stems glabrous; leaves oblong-lanceolate to ovate, opposite, sessile along flowering stems; corolla light blue-purple; capsules not or scarcely notched, about as long as wide; pedicels ascending. Syn.: *V. anagallis* L.

REFERENCES: Riddell 1834:157 (the bed of small rivulets); Sullivant 1840:39; Craig 1890:93 (several large specimens were found last summer in the small swamp W of the lake); Selby & Craig 1890:13; Cooperrider 1995:477 (illus. p. 478).

HERBARIUM RECORDS: 29 Aug 1927—Cols., *Wherry & Pennell 13502* (CINC); 15 Jul 1988—Highbanks Metro Park (Delaware Co.), sandbars & rocky shallow areas along Olentangy R., *Watts 447* (OS, OWU).

13. *Veronica scutellata* L.

Marsh Speedwell

Stems glabrous, ascending to weakly erect; leaves opposite, linear to lanceolate, sessile, marginal teeth appearing glandular; flowers in axillary racemes, pedicels less than 1 cm long; somewhat deflexed; corolla pale red-purple to blue; capsules glabrous, exceeding calyx.

REFERENCES: Riddell 1834:157 (wet prairies); Sullivant 1840:39; Craig 1890:94 (occurs sparingly in a small bog in the W part of the island and N of the duck pond); Selby & Craig 1890:13; Cooperrider 1995:475 (illus. p. 476).

HERBARIUM RECORDS: 4 Jul 1891—Worthington, *Selby* (OS, WOOS); 28 Jun 1892—Cols. & Franklin Co., *Bogue*.

21. PEDICULARIS L. Wood Betony, Lousewort

Leaves toothed or pinnatifid, sometimes chiefly basal; calyx usually oblique; corolla yellow or tinged with purple or red, strongly 2-lipped, upper lip arched, laterally flattened, enclosing the 4 stamens; lower lip with 2 longitudinal folds or crests; capsule asymmetric, pointed; seeds several to many.

a Flowering in spring; calyx split in front, otherwise nearly entire; leaves alternate; capsule flattened, lance-oblong, in fruit twice as long as calyx. 1. *P. canadensis*

a' Flowering in autumn; each half of calyx with a leaflike appendage; leaves partly opposite; capsule ovoid, in fruit not twice as long as calyx. 2. *P. lanceolata*

1. *Pedicularis canadensis* L.

Common Lousewort, Wood-betony

Stems woolly pubescent below inflorescence; leaves mostly basal, cauline leaves alternate, depth of sinuses more than half the way to midrib; flowers in terminal spike-like racemes; calyx shallowly 2-lobed, without appendages; corolla bilabiate, upper lip hooded, yellow or red-purple.

REFERENCES: Riddell 1834:157 (open woods); Sullivant 1840:38; Selby & Craig 1890:13; Cooperrider 1995:494 (illus. p. 493).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; May 1890—Central College, Cols., *Selby*; May 1891—Central College, *Selby* (WOOS); 7 May 1892—Georgesville, *Werner*; 17 May 1892—Georgesville, *E. M. Wilcox*; 28 May 1892—Central College, *W. Kellerman*; 4 May 1895—Georgesville, *Osburn*; 28 Sep 1982—Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, *G. Moore 301*; 31 May 1993—jct. of Graessle Rd. & Rt. 665, bluffs, Battelle Darby Metro Park, Pleasant Twp., *Lowden 5058*.

2. *Pedicularis lanceolata* Michx.

Swamp Lousewort

Stems glabrous below terminal spike-like racemes; leaves mostly opposite, blades shallowly pinnately lobed, depth of sinuses less than half way to midrib; calyx deeply 2-lobed, each with an apical leafy extension; corolla bilabiate, cream to yellow-green.

REFERENCES: Riddell 1834:157 (*Pedicularis pallida* Torr., wet prairies); Sullivant 1840:38 (*Pedicularis pallida* Pursh); Selby & Craig 1890:13; Cooperrider 1995:492 (illus. p. 493).

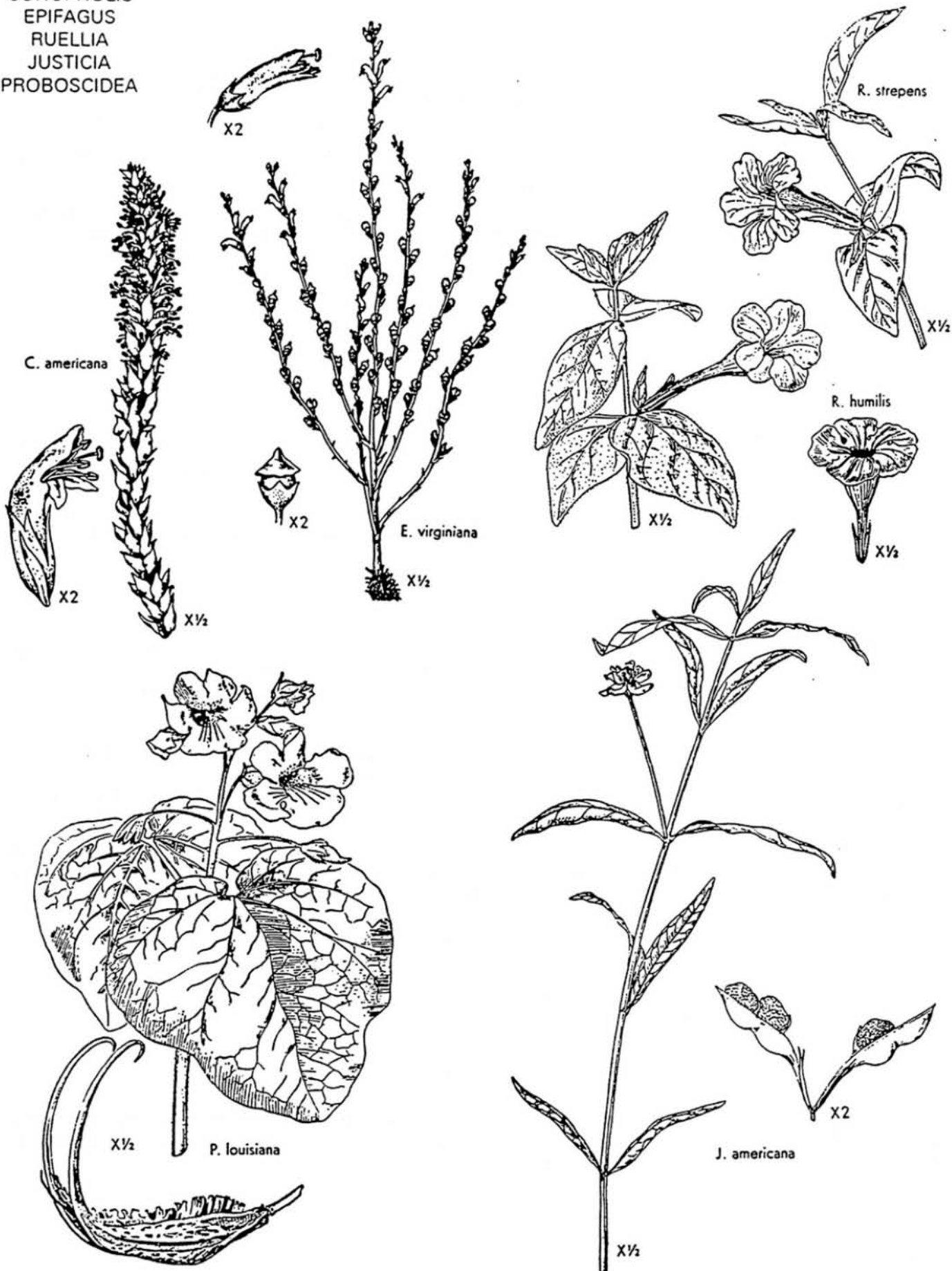
HERBARIUM RECORDS: 12 Oct 1890—Cols., *Selby*; 12 Sep 1891—Cols., *W. Kellerman*; 12 Sep 1892—Franklin Co., *Selby*; 17 Sep 1991—E bank of Big Darby Creek, just N of Rt. 40, Prairie Twp., *Lowden 4848*.

NOTE: Evidently Riddell's and Sullivant's *Pedicularis pallida* belongs here.

22. CASTILLEJA Mutis

Leaves of basal rosettes mostly entire; stem-leaves alternate, usually 3-5-cleft; flowers in terminal spike, floral bracts usually 3-5-lobed, scarlet, yellow, or white at tip; calyx tubular, 2-3 cm long, deeply 2-lobed; corolla pale yellow, little longer than calyx, 2-lipped; stamens 4, not exerted.

CONOPHOLIS  
EPIFAGUS  
RUELLIA  
JUSTICIA  
PROBOSCIDEA



1. *Castilleja coccinea* (L.) Spreng.

Painted-cup, Indian Paintbrush

Stems pubescent; leaves alternate or lobed into 3-5 linear segments, some leaves in a basal rosette; flowers in terminal spicate inflorescences, borne in axils of showy 3-5 lobed bracts, scarlet or orange at apex; corolla bilabiate, whitish or greenish-yellow.

REFERENCES: Sullivant 1840:38 (*Euchroma coccinea* Nutt.); Selby & Craig 1890:13; Cooperrider 1995:491 (illus. p. 493).

HERBARIUM RECORDS: 1840—Cols., Sullivant; 9 May 1891—Big Darby & Big Darby R., Selby (OS, WOOS); 6 Jun 1891—Harrisburg, Cols., Selby; 7 May 1892—Georgesville, Werner; 17 May 1892—Georgesville, near Cols., E. M. Wilcox; 15 Jul 1892—Georgesville, Bogue; 22 May 1899—Big Darby, Cols., Selby.

## OROBANCHACEAE, Broom-rape Family

Low, somewhat fleshy, nongreen herbs parasitic on roots; leaves alternate, scalelike; flowers hypogynous, perfect, in spikes or racemes or solitary; calyx with 2-5 lobes or teeth; corolla of 4 or 5 united petals, 2-lipped; stamens 4, on corolla tube; carpels 2, united; style 1, slender; ovary 1-loculed, with 2 or 4 parietal placentae; capsule many-seeded.

a Flowers solitary at ends of leafless stalks; corolla white or lavender. 1. OROBANCHE

a' Flowers in spikes or spikelike racemes; stems with scalelike leaves.

b Stems stout, usually unbranched; flowers crowded in inflorescence. 2. CONOPHOLIS

b' Stems slender, usually much branched; flowers not or scarcely crowded; scalelike leaves 2-4 mm long, not overlapping. 3. EPIFAGUS

### 1. OROBANCHE L. Broom-rape

White, brownish, or purple, glandular-pubescent, parasitic on many species of plants; calyx 5-lobed or 5-cleft; corolla 15-25 mm long, white, lavender, or purple, tube usually curved and longer than the 2-lipped limb.

#### 1. *Orobanche uniflora* L.

One-flowered Broom-rape, One-flowered Cancer-root

Plants glandular-pubescent, parasitic; stems underground; peduncles aerial, scape-like, each bearing a single flower; corolla whitish to lavender, lobes rounded.

REFERENCES: Selby 1891a:111a (*Aphyllon uniflorum* A.Gray); Cooperrider 1995:502 (illus. p. 501).

HERBARIUM RECORDS: 13 May 1891—Insane Asylum, Cols., Selby; 13 May 1891—near Cols., on roots of grasses, Selby; 26 May 1934—Indian Springs, Chapman; 28 May 1936—Sharon Twp., Wolf & S. Humphrey; 22 May 1937—Prairie Twp., Gordon.

### 2. CONOPHOLIS Wallr. Squawroot

Stout glabrous unbranched yellow or light-brown herb parasitic on roots of several woody species; scale leaves ovate, up to 2 cm long, many, overlapping; flowers sessile, bracted, in crowded spike; calyx irregularly toothed, split on lower side; corolla 10-15 mm long, 2-lipped; stamens exerted.

#### 1. *Conopholis americana* (L.) Wallr.

Squaw-root, Cancer Root

Plants glabrous; parasitic on roots of oak; stems aerial, brown, thick, many flowered; flowers and fruits crowded in a dense spicate inflorescence, brown scales overlapping; calyx toothed, deeply split on lower side; corolla pale yellow; stamens about as long as corolla.

REFERENCES: Sullivant 1840:38 (*Orobanche americana* L.); Selby & Craig 1890:13; Cooperrider 1995:500 (illus. p. 501).

HERBARIUM RECORDS: 13 Sep 1890—Cols., Werner (CLM, specimen mixed with *Epifagus virginiana*); 7 May 1892—Georgesville, Detmers; 7 May 1892—Franklin Co., W. Kellerman; 21 May 1970—Blendon Woods, on damp hillsides under oak trees, occasional in thick clumps, Boone 160; 25 May 1982—Highbanks Metro Park (Franklin & Delaware Cos.), infrequent in oak-hickory, G. Moore 213; 23 May 1986—Highbanks Metro Park (Delaware Co.), dry ridges, woods, Watts 313 (OS, OWU); 2 Jun 1991—Hoover Dam Park, in woods N of entrance off Cubbage Rd., Blendon Twp., Lowden 4651.

### 3. EPIFAGUS Nutt. Beech-drops