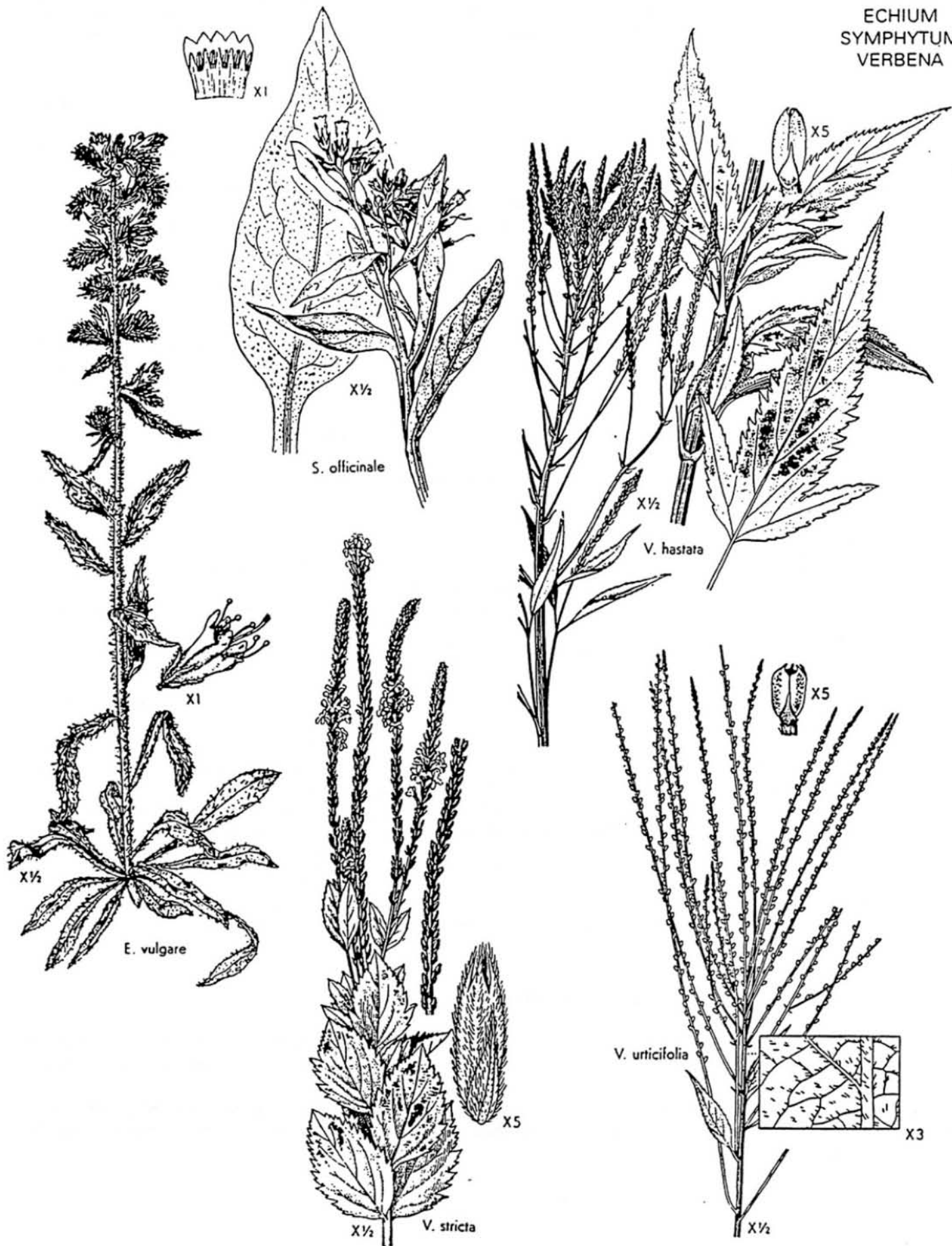


ECHIUM
SYMPHYTUM
VERBENA



- 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.

VERBENA
PHYLA
PHRYMA



2. *Verbena hastata* L.

Blue Vervain

Flowers & fruits congested in 5-many spicate inflorescences, leaves lanceolate to ovate, sometimes hastately lobed; corolla blue to purple.

REFERENCES: Riddell 1834:157 (bottomland); Sullivant 1840:37; Craig 1890:95 (found with *Verbena urticifolia* but is not so common, 27 Jul 1882, 25 Jun 1887); Selby & Craig 1890:14; Cooperrider 1995:371 (illus. p. 372).

HERBARIUM RECORDS: 10 Jul 1890—Cols., *Hine*; 7 Aug 1890—near Jaeger's Ice Pond, Cols., *Selby*; 1892—Cols., *Bogue*; 10 Oct 1902—Cols., *Sanders*; 31 Jul 1982—Blendon Woods, *Owens*; 2 Aug 1982—Highbanks Metro Park (Franklin & Delaware Cos.), floodplain, *G. Moore 335*; 17 Jul 1987—Highbanks Metro Park (Delaware Co.), open fields, *Watts*; Summer 1988—along Olentangy R., OSU campus, Cols., *DeLong*; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, Galloway Quad., *DeLong*; 5 Jul 1991—E bank of Olentangy R., between Lane Ave. & King Ave., OSU campus, Cols., Clinton Twp., *Lowden 4763*; 13 Oct 1991—W bank of Olentangy R., mudflat N of Lane Ave., bridge, S of Fawcett Center, OSU campus, Cols., Clinton Twp., *Lowden 4881*.

3. *Verbena stricta* Vent.

Hoary Vervain

Probably native

Stems and leaves densely soft-pubescent; inflorescences spicate, in groups of 3 or fewer at tip of stems; corolla blue or purple; leaves elliptic to oblong or ovate, veins conspicuously reticulate.

REFERENCES: Selby & Craig 1890:14 (introduced); Cooperrider 1995:373 (illus. p. 374).

HERBARIUM RECORDS: 3 Aug 1882—SW of Cols., *W. Green*; 3 Aug 1890—So. Cols., *W. Green*; Sep 1892—RR yards near Scioto R., near Cols., *Wilcox*; 19 Sep 1898?—Sellsville, *W. Kellerman*.

4. *Verbena simplex* Lehm.

Narrow-leaved Vervain

Inflorescence spicate, solitary or in groups of 3 at tips of stems; stems sparingly pubescent; leaves linear to narrowly lanceolate; corolla purple. Syn.: *V. angustifolia* Michx.

REFERENCES: Selby 1891a:111a (found at Sellsville); Selby 1891b:75; Cooperrider 1995:371 (illus. p. 372).

HERBARIUM RECORDS: 5 Jul 1891—on grounds of Sell's Circus, Sellsville, *Selby*; 6 Jul 1891—Sellsville, Cols., *Selby*; 26 Jun 1920—Upper Arlington, Cols., *J. H. Schaffner*.

5. **Verbena bracteata* Lag. & Rodr.

Prostrate Vervain

Recent introduction (native of Ohio)

Leaves lobed or incised; bracts of inflorescence longer than flowers.

HERBARIUM RECORD: 24 Aug 1992—Indianola Ave., uncommon, weedy strip N of Cooke Rd., NE Cols. Quad., *Cusick 30454*.

NOTE: Not mapped for Franklin Co. by Cooperrider 1995:373 (illus. p. 374).

6. **Verbena canadensis* (L.) Britton

Rose Vervain

Cultivated escape (native of S & W U.S.)

Stems ascending, hirsute, squarish; leaves deeply incised to somewhat lobed.

REFERENCE: Cooperrider 1995:373 (illus. p. 374).

HERBARIUM RECORD: 4 Oct 1899—Cols., escaped from cult., *J. H. Schaffner*.

NOTE: Specimen not in flower.

2. PHYLAs Lour. Fog Fruit

On moist or wet soil; flowering branches erect from horizontal stems; blades lanceolate, acute at tip and base; flowers very small, bracted, in heads or short spikes on long axillary peduncles; corolla pink-purple or white, slightly 2-lipped; ovary 2-loculed, splitting into 2 one-seeded nutlets. (*Lippia* L.)

1. *Phyla lanceolata* (Michx.) Greene

Fog-fruit, Frog-fruit

Plants procumbent to ascending; leaves simple, serrate to dentate, flowers in head-like spikes; corolla 4-lobed and 2-lipped, white to pink or blue. Syn.: *Lippia lanceolata* Michx.

REFERENCES: Riddell 1834:157 (*Zapenia nodiflora*, denuded river banks); Sullivant 1840:37 (*Zapenia nodiflora* Lam.); Craig 1890:54, 95 (abundant in the lake swamp, in the meadow S of Prof. Thomas' house near the bridge, and occasionally elsewhere as it is spreading rapidly, 10 Jul 1882, 5 Jul 1887, University Farm Sep 1887); Selby & Craig 1890:14; Cooperrider 1995:375 (illus. p. 374).

HERBARIUM RECORDS: 1888—Cols., *Weed*; Jul 1888—Cols., *Craig*; 7 Aug 1890—Alum Creek, Cols., *Selby*; 13 Aug 1890—Cols., *Werner* (CLM); 12 Jul 1897—Cols., *Osburn*; 22 Sep 1974—Wright Rd. Pond, W of Bowen Rd. in marsh overflow area, *May 6*; 21 Jun 1977—Pickerington Marsh, N of Bowen Rd., Madison Twp., *Cusick* (KE); 18 Aug 1982—Alum Creek floodplain, *Owens*; 10 Jul 1986—OSU campus, banks of Olentangy R., *E. King 5*; Summer 1988—along Olentangy R., OSU campus, Cols., *DeLong*; 13 Jun 1991—Friendship Park, jct. of Big Walnut Creek with Rocky Fork Creek, S of Rt. 317, Gahanna, Mifflin Twp., *Lowden 4693*; 23 Jun 1991—E bank of Scioto R., James J. Thomas Park, from Lane Rd. to Lane Ave., Upper Arlington, Perry Twp., *Lowden 4738*; 26 Jun 1991—E bank of Scioto R., rocky shore just S of Trabue-Murphy Landing, Perry Twp., *Lowden 4743*; 5 Jul 1991—E bank of Olentangy R., OSU campus, between Lane Ave. & King Ave., Clinton Twp., *Lowden 4756*; 10 Aug 1992—Pickerington Ponds, wetland wildlife area, just S of Wright Rd. & E of Bowen Rd., Madison Twp., *Lowden 5028*.

3. PHRYMA L. Lopseed

Herb; leaves opposite, ovate, toothed; flowers hypogynous, perfect, opposite on axis of terminal and usually also axillary spikes; calyx 5-toothed, 2-lipped; corolla rose, pale purple, or white, about 7 mm long, 2-lipped; stamens 4, two of them longer, inserted on corolla; carpels 2, united; style 1, stigma 2-lobed; locule and ovule 1; fruit indehiscent, in reflexed persistent calyx.

1. *Phryma leptostachya* L.

Lopseed

Stems erect, finely pubescent; inflorescences elongated spikes; corolla 2-lipped, white to purple; calyx 2-lipped, widely divergent from inflorescence axis in flower, strongly reflexed in fruit.

REFERENCES: Riddell 1834:157 (dense and shady woods); Sullivant 1840:37; Craig 1890:95 (common in the woods and about the island); Selby & Craig 1890:14; Cooperrider 1995:375 (illus. p. 374).

HERBARIUM RECORDS: 27 Jul 1882—Cols., *W. Green*; Jul 1888—Cols., *Craig*; 24 Jul 1890—Cols., *Hine*; 30 Jul 1896—Cols., *Hendrixson*; 9 Jul 1982—Highbanks Metro Park (Franklin & Delaware Cos.), *G. Moore* 223; 14 Jul 1982—Blendon Woods, *Owens*; 26 Jul 1986—Highbanks Metro Park (Delaware Co.), damp woods, *Morawetz* 23 (OS, OWU); 16 Jul 1990—Whetstone Park of Roses, along path behind Blenheim Rd. bus turn around, Clinton Twp., *Lowden* 4452.

LAMIACEAE, Mint Family

Usually aromatic herbs or rarely shrubs; stems square; leaves opposite; flowers hypogynous, perfect, in whorls (or rarely solitary) in axils of foliage leaves; or in axils of bracts, then whorls or solitary flowers in spikes or racemes; or whorls 1-few at or near summit of stem; calyx usually 5-lobed or -toothed, sometimes 2-lipped; corolla zygomorphic, rarely almost regular, of 5 petals, usually 5-lobed or sometimes apparently 4-lobed, usually 2-lipped, upper lip usually 2-lobed, lower lip usually 3-lobed; stamens 4 or 2, on the corolla, when 4, usually of 2 lengths, when 2, the other pair sometimes present as vestiges; pollen-sacs parallel or their bases divergent, in extreme condition the sacs lying end to end in a straight line perpendicular to filament; carpels 2, united, ovary 4-lobed, 1 ovule in each lobe; style 1, bifid at tip; fruit enclosed in persistent calyx, separating into 4 one-seeded nutlets; in genera Nos. 1-3, style terminal, nutlets laterally attached; in the other genera, style basal, nutlets basally attached. (Labiatae, nom. altern.)

Suggestion. To find whether inner (upper) or outer (lower) pair of stamens is the longer, cut corolla lengthwise along median line of lower lip, then separate cut edges exposing stamens. The two stamens in the middle are the inner (upper) pair; the two on the outside are the outer (lower) pair.

The genus *Thymus* L. (Eurasian) is included in the key below. There is a cultivated collection of thymes at the Inniswood Gardens.

- a Anther-bearing stamens 4.
 - b Calyx with a protuberance on upper side, 2-lipped; corolla 2-lipped. **4. SCUTELLARIA**
 - b' Calyx without a protuberance on upper side.
 - c Corolla nearly equally toothed or lobed, not or scarcely 2-lipped.
 - d Leaf-blades 1-3-nerved, nearly entire; pollen-sacs divergent. **3. ISANTHUS**
 - d' Leaf-blades serrate or dentate, pinnately veined; pollen-sacs parallel.
 - e Flowers in clusters in axils of leaves or bracts, clusters sometimes in spikes or heads; corolla usually 4-lobed. **10. MENTHA**
 - e' Flowers solitary in axils of bracts, in spikelike racemes; corolla 5-lobed; calyx 2-lipped in fruit. **12. PERILLA**
 - c' Corolla appearing 1-lipped, upper lip very short, sometimes split. (See c'.)
 - f Corolla with short 2-lobed upper lip, lower lip large and spreading; calyx nearly regular, lobes equaling tube. **1. AJUGA**
 - f' Corolla split on upper side, stamens exerted in the cleft, hence all lobes below stamens, corolla thus appearing to have 5-lobed lower lip but no upper lip; calyx somewhat 2-lipped, toothed. **2. TEUCRIUM**
 - c'' Corolla more or less 2-lipped.