

AQUIFOLIACEAE, Holly Family

Trees and shrubs, evergreen or deciduous; leaves alternate, simple, with minute stipules; flowers hypogynous, monosporangiate, each kind bearing vestiges of the other sporophylls, or bisporangiate; mostly dioecious, but some bisporangiate flowers present with the monosporangiate ones; sepals 4-6, small, or absent; perianth regular; petals 4-8; stamens as many, sometimes slightly united with petals, alternate with them; carpels 4-several, united, locules as many, 1 or 2 ovules in each locule; style short or none; fruit a drupe.

- a Calyx present, persistent in fruit; petals white or greenish, united at base. **1. ILEX**
a' Calyx none or deciduous; petals yellowish, separate, linear-oblong. **2. NEMOPANTHUS**

1. ILEX L. Holly

Deciduous or evergreen; staminate flowers usually clustered, the carpellate clustered or solitary; petals and stamens 4-8; ovary 4-8-loculed, 1 ovule in each locule; fruit a red or yellow drupe.

The American Holly, †*Ilex opaca* Aiton, is cultivated in gardens. Not treated for Franklin Co. by Cooperrider 1995:66 (illus. p. 65).

- a Leaves evergreen, spiny-toothed to almost entire, coriaceous. *I. opaca*
a' Leaves deciduous, serrate, oblanceolate, elliptic, or obovate, not coriaceous. **1. I. verticillata**

1. *Ilex verticillata* (L.) A.Gray

Winterberry, Black Alder

Shrub, leaves deciduous, serrate, oblanceolate to obovate; stipules small, dark and pointed; calyx lobes ciliate.

REFERENCES: Riddell 1834:154 (*Prinos verticillatus*, dry prairies); Sullivant 1840:27 (*Prinos verticillatus* L.); Selby & Craig 1890:8; Braun 1961:239 (illus. p. 240); Cooperrider 1995:66 (illus. p. 65).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; Aug 1890—Worthington Woods, Cols., *Selby*; 1891—Worthington Woods, *Selby* (OS, WOOS); 28 Jun 1892—Cols. & Worthington, *W. Kellerman*; 30 May 1896—Reservoir Park, *M. Wright*.

2. NEMOPANTHUS Raf. Mountain-holly

Glabrous shrub; leaves thin, elliptic or oblong, entire or nearly so, 5 cm long or less; calyx minute and deciduous or absent; flowers axillary, slender-pedicel, solitary or clustered; drupe red.

1. †*Nemopanthus mucronatus* (L.) Trel.

Mountain-holly

REFERENCE: Braun 1961:239 (illus. p. 240).

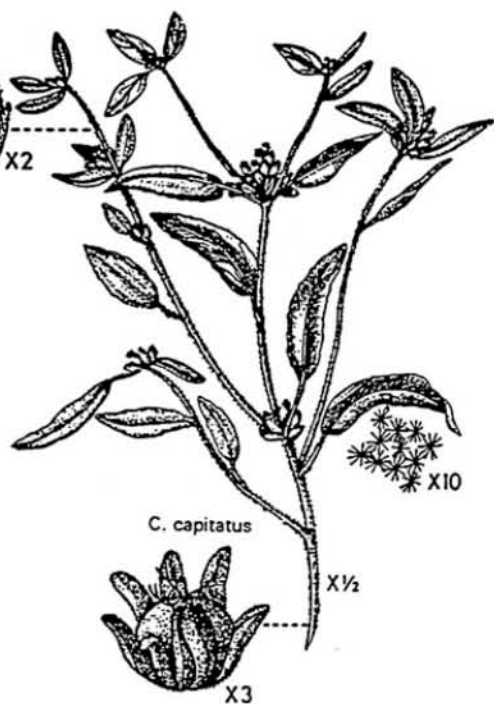
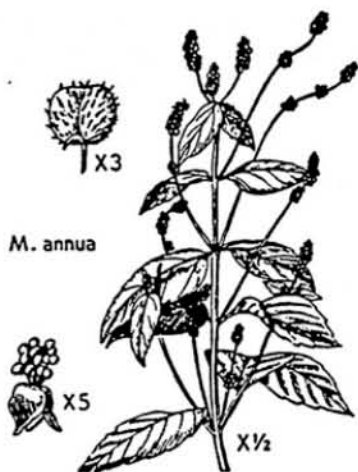
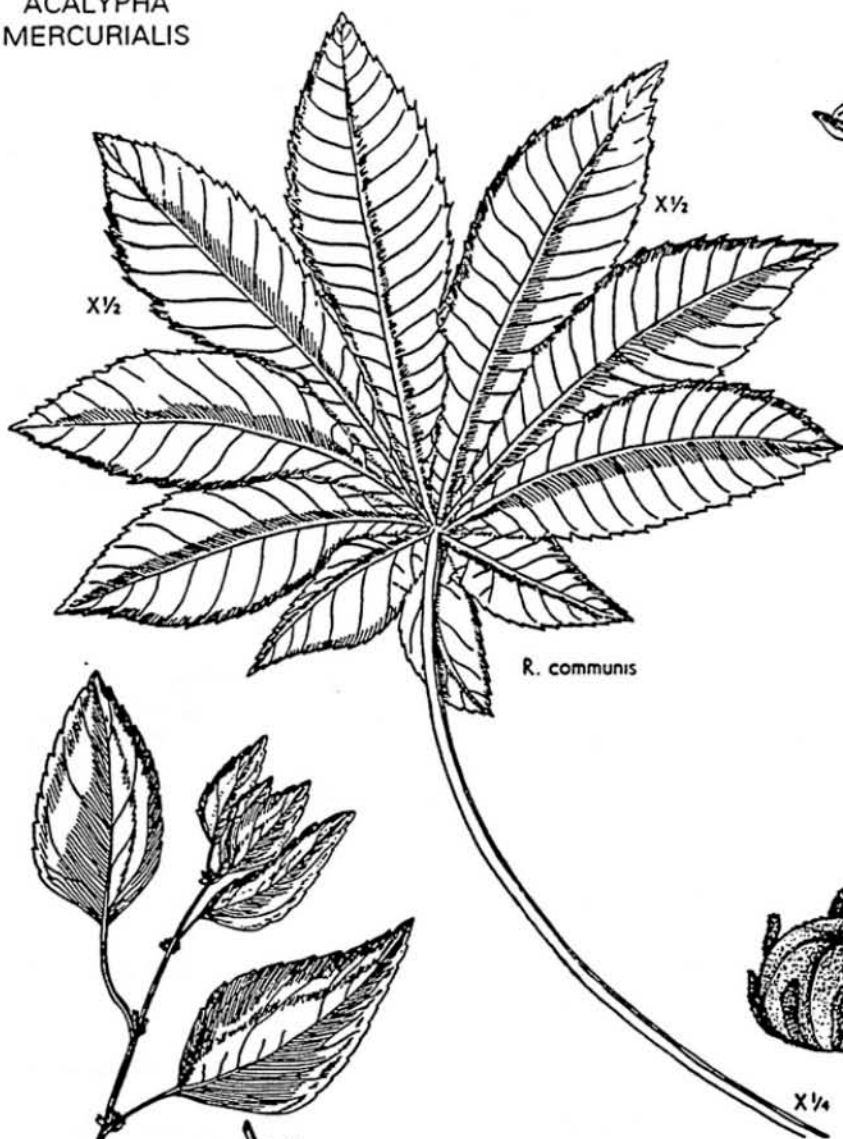
NOTE: Not mapped for Franklin Co. by Cooperrider 1995:67 (illus. p. 65). Cooperrider refers to a specimen in The Ohio State Herbarium, collected by Wm. C. Werner in 1890 from N Cols., Franklin Co. At present, I have seen no specimens from Franklin Co.

EUPHORBIACEAE, Spurge Family

Herbs, often with milky juice; rarely dioecious; flowers hypogynous, monosporangiate; calyx and corolla present, or corolla or both absent; perianth, when present, usually regular, usually of separate parts; carpels 2 or 3, united, locules and styles as many, styles usually 2-lobed; stigmas sometimes dissected into many filiform segments; ovules 1 or 2 in each locule; placentae axile; fruit a capsule.

- a Flowers without a perianth, borne in a cyathium; juice milky. **5. EUPHORBIA**
a' Flowers with at least a calyx, not borne in a cyathium; juice not milky.
b Leaves opposite, glabrous; styles 2; ovary 2-loculed. **4. MERCURIALIS**
b' Leaves alternate; if some leaves are opposite, then leaves stellate-pubescent.
c Leaves large, peltate, palmately lobed; stamens branched. **1. RICINUS**
c' Leaves not peltate, stamens not branched.

RICINUS
CROTON
ACALYPHA
MERCURIALIS



d Pubescence not stellate; carpellate flowers subtended by a several-lobed or -toothed bract.

3. ACALYPHA

d' Pubescence stellate; carpellate flowers not subtended by such bract. **2. CROTON**

1. RICINUS L. Castor-bean

Tall, stout, glabrous, glaucous; leaves large, alternate, peltate, palmately-lobed; flowers monosporangiate, in panicles, the staminate below, the carpellate above, sometimes some bisporangiate ones between; sepals 3-5; petals none; stamens many; seeds caruncled, poisonous; capsule spiny.

1. **Ricinus communis* L.

Castor-bean

Adventive (introduced from the tropics)

Plants tall; leaves large, peltate, palmately-lobed; capsules spiny.

REFERENCES: Riddell 1834:119 (naturalized); Cooperrider 1995:39 (illus. p. 38)

HERBARIUM RECORDS: 18 Jul 1901—Cols., *Jennings*; 22 Oct 1903—Cols., *J. H. Schaffner*; 24 Aug 1935—Cols., *Alter*.

2. CROTON L.

Monoecious; stellate-pubescent; leaves mostly alternate; flowers in small crowded clusters terminal on stem and branches; sepals commonly 5; petals the same number or absent; stamens 5-many; hypogynous disk present; capsule 2- or 3-seeded; ovules 1 in each locule; seed with caruncle.

a Ovary 2-loculed; capsule 1-seeded; styles 2, each bifid. **1. *C. monanthogynus***

a' Ovary 3-loculed; capsule usually 3-seeded; styles 3, each 2-3 times forked. **2. *C. capitatus***

1. *†*Croton monanthogynus* Michx.

Prairie-tea, One-seed Croton

Naturalized (native of SE U.S.)

Similar to *Croton capitatus* except capsules 1-seeded.

REFERENCES: Jones 1943:92; Cooperrider 1995:35 (illus. p. 34).

HERBARIUM RECORDS: 17 Aug 1905—N Cols., *Fischer*; 14 Oct 1905—N Cols., *Fischer*.

2. *†*Croton capitatus* Michx.

Hogwort, Woolly Croton, Capitatus Croton

Naturalized (native of the SE U.S.)

Leaf blades entire or undulate; pubescence stellate; capsule usually 3-seeded.

REFERENCES: Selby & Craig 1890:15 (introduced from western states); Lazenby 1891:302; Selby 1891b:76; Selby 1891c:149; Cooperrider 1995:33 (illus. p. 34).

HERBARIUM RECORDS: 26 Oct 1890—Sellsville, *Selby*; 1898—Sellsville W of Cols., collected by a student; Oct 1898—Circus grounds W of Cols., OSU students.

3. ACALYPHA L. Three-seeded Mercury, Copperleaf

Monoecious; leaves alternate, with stipules; flowers monosporangiate, in spikes, the carpellate sometimes in separate ones, sometimes at base of staminate spike; spike subtended by foliaceous bract; calyx of staminate flowers 4-parted, of carpellate, 3-5-parted; petals none; stamens 8-16; styles 3, dissected; ovules 1 in each locule.

a Leaf blades ovate; petioles almost as long as blades; bracts usually 5-7-cleft. **1. *A. rhomboidea***

a' Leaf blades ovate-lanceolate to linear, longer than petioles; bracts 9-15-lobed. **2. *A. virginica***

1. *Acalypha rhomboidea* Raf.

Rhombic Three-seeded Mercury, Three-seeded Mercury

Leaves ovate to broadly rhombic, petioles ½ to as long as the blades; bracts subtending carpellate flowers with 5-9 lobes, bearing stalked glands; stems with hairs short and incurved. Syn.: *A. virginica* L. var. *rhomboidea* (Raf.) Cooperr.

REFERENCE: Cooperrider 1995:37 (illus. p. 34).

HERBARIUM RECORDS: 9 Aug 1890—Cols., *Hine*; 10 Oct 1901—Neil's Run, Cols., *Eckman*; 3 Nov 1984—Gahanna Woods State Nature Preserve, swampy area along Woodland Pond Trail (I) & near boardwalk bridge (IV), *Tyrrell*; 6 Nov 1984—Gahanna Woods State Nature Preserve,

swampy area along Woodland Pond Trail (III), Tyrrell; 24 Aug 1989—Walnut Grove Cemetery, Worthington, Sharon Twp., Lowden 4296; 25 Sep 1991—W side of Scioto R. off Dublin Rd., 1 mi. N of Tuttle Rd., between bridge & deep gorge leading to river, Washington Twp., Lowden 4862.

2. *Acalypha virginica* L. var. *virginica*

Virginia Three-seeded Mercury

Leaves broadly lanceolate to narrowly rhombic, petioles less than half the length of the blade; bracts subtending carpellate flowers with 9-15 lobes with many straight hairs; staminate spikes equaling or surpassing bracts; petiole usually exceeding bract it subtends; stems usually with both spreading and incurved hairs.

REFERENCES: Riddell 1834:119 (*Acalypha caroliniana*, open woods); Sullivant 1840:14; Craig 1890:100 (common in damp shady places, W of the lake and elsewhere); Selby & Craig 1890:15; Cooperrider 1995:36 (illus. p. 34).

HERBARIUM RECORDS: 11 Aug 1890—OSU campus, near Cols., Hine; 3 Sep 1892—Cols., Bogue; 15 Jul 1982—Teater Park, SE corner of Ohio State Fairgrounds, SE Cols. Quad., Cusick 21801 (MU).

4. MERCURIALIS L. Mercury

Dioecious; leaves opposite, petioled, stipuled; blades lanceolate, serrate; staminate flowers in peduncled interrupted spikes, carpellate in short axillary clusters; sepals 3; petals none; stamens 8-20; ovary 2-loculed; styles 2; capsule 2-seeded, pubescent.

1. **Mercurialis annua* L.

Herb Mercury, Boys-and-Girls

Adventive (native of Europe, W Asia & N Africa)

Herbs erect; leaves ovate-lanceolate; carpels hispid.

REFERENCE: Cooperrider 1995:32.

HERBARIUM RECORD: 1 Nov 1922—Cols., J. H. Schaffner.

5. EUPHORBIA L. Spurge

Herbs with milky juice; monoecious; flowers monosporangiate, the staminate consisting of a single stamen, the carpellate consisting of a gynoecium of 3 united carpels, ovary 3-loculed, 1 ovule in each locule, style 3, bifid; inflorescence-unit a cyathium, consisting of several staminate flowers and 1 carpellate flower within a cup-shaped involucre with edge 4- or 5-lobed, the 1-5 glands in the sinuses sometimes with petal-like appendages; pedicel of carpellate flowers (gynophore) elongating in fruit and arching over edge of cup; cyathia variously clustered.

Two spurges not treated in the key below: *Euphorbia lathyris* L. (Caper Spurge), native to the Mediterranean region, reported by Cooperrider 1995:48 (illus. p. 49). Plants are erect, glabrous; leaves entire, linear to narrowly lanceolate, sessile (3 May 1938—spontaneous at Grandview, W. Paddock). †*Euphorbia purpurea* (Raf.) Fernald (Glade Spurge), with blades entire, tips of leaves minutely apiculate; floral leaves varying from nearly as wide as long to wider than long; cauline leaves petioled, 0.5-1.5 cm long; glands of cyathium 2-horned; seeds pitted all over (ca. 1834)—Cols., Lapham, CINC). Cooperrider 1995:45 (illus. p. 44) referred to Lapham's specimen as representing a species that might have grown in Franklin Co.

- a Glands of cyathium with white or pink petal-like appendages or, if these are absent or reduced, then plant prostrate, mat-forming.
 - b Leaves alternate below inflorescence; plant erect.
 - c Glabrous; leaves green; glands 5. **6. *E. corollata***
 - c' Stem and cyathia pubescent; upper leaves and those subtending rays of inflorescence entirely white or conspicuously white-margined; glands 5. **7. *E. marginata***
 - b' Leaves all opposite, small, blade oblique at base; plants mostly procumbent.
 - d Ovary and capsule pubescent. **9. *E. maculata***
 - d' Ovary and capsule glabrous. **8. *E. nutans***
- a' Glands of cyathium without petal-like appendages, sometimes with crescent-shaped horns; plants mostly erect or spreading.
 - e Cyathia in dense terminal clusters, 4-5-lobed, lobes fimbriate; gland usually 1; leaves opposite below inflorescence. **5. *E. dentata***
 - e' Cyathia in mostly umbelliform clusters subtended by a whorl of leaves, usually 4-lobed and with 4 glands; leaves mainly alternate below inflorescence.

- f Leaf-blades entire; glands of cyathium crescent-shaped or 2-horned.
- g Seeds smooth; stem-leaves linear, those of inflorescence broader. 4. *E. cyparissias*
- g' Seeds pitted or tubercled.
- h Each lobe of capsule crested with 2 wings; seeds with 4 rows of 3-4 pits on outer face, 2 furrows on inner face; stem-leaves petioled, blunt to retuse at apex. 3. *E. peplus*
- h' Lobes of capsule not winged; stem-leaves sessile or subsessile. 2. *E. commutata*
- f' Leaf-blades serrulate; glands of cyathium elliptic, oval, or circular. 1. *E. obtusata*

1. *Euphorbia obtusata* Pursh

Blunt-leaved Spurge

Inflorescence usually 3-rayed; blades glabrous beneath, stem blades oblanceolate; cyathium glabrous; bifid styles separate to base; ovary and capsule warty.

REFERENCES: Riddell 1834:119 (open woods); Sullivant 1840:14; Selby & Craig 1890:15; Selby 1891a:111a (#719 Re-collected); Cooperrider 1995:45 (illus. p. 44).

NOTE: No specimens seen from Franklin Co.

2. *Euphorbia commutata* Engelm.

Wood Spurge

Leaves entire, obtuse or retuse at apex; floral leaves wider than long, some connate at base; stem leaves below inflorescence sessile to petiolate at stem base; seed surface pitted all over.

REFERENCES: Craig 1890:99-100 (rare; I found a few specimens 19 Apr 1889 on a moist bank S of the island spring, and a week later I found it growing on the island near the W dike; it is abundant just across the river from the last locality, 15 Apr 1882, 13 May 1883, 6 May 1884, 2 Jun 1885, 5 May 1888, 19 Apr 1889; this is not common about Cols., but is very abundant on the rocky banks of the Scioto R. three mi. W of the city and N of Arlington); Selby & Craig 1890:15; Cooperrider 1995:48 (illus. p. 46).

HERBARIUM RECORDS: 17 Apr 1882—OSU, Cols., *Devol*; 2 Jun 1888—Banks of Scioto R., *Selby*; 1891—Cols., *Selby*; 21 May 1891—Cols., *Werner* (CLM); 7 May 1892—Georgesville, *Detmers*; 29 Aug 1892—Franklin Co., *Werner*; 20 Aug 1894—OSU campus, *W. Kellerman*; 31 May 1896—Cols., *E. M. Wilcox*; 18 May 1933—Franklin Co., *Hicks*; 9 Apr 1967—W facing slope of ravine W side of cemetery, approx. 3/4 mi. W of Darbydale, Pleasant Twp., *Stuckey 3415*; 3 Jun 1980—W edge of abandoned limestone quarry, E bank of Scioto R., 3/4 mi. S of Rt. 161 on Rt. 33, Perry Twp., NW 1/4 NW Cols. Quad., *W. Carr 2873* (KE, OS).

3. **Euphorbia peplus* L.

Petty Spurge

Naturalized (native of Eurasia)

Plants erect; leaves below inflorescence branches petioled; each lobe of capsule crested with 2 wings; seeds with 4 rows of 3-4 pits on outer face, 2 furrows on inner face.

REFERENCES: Riddell 1834:119 (open woods); Sullivant 1840:14; Craig 1890:99 (an eastern plant which I have never seen about Cols.); Selby & Craig 1890:15 (introduced); Cooperrider 1995:48 (illus. p. 46).

HERBARIUM RECORDS: 9 Jun 1979—lawn, SW corner Waldeck and Norwich near OSU campus, Cols., *W. Carr*; 20 Jul 1979—lawn, SW corner Waldeck and Norwich, Cols., *W. Carr 1687*; 20 Jul 1979—72 E. 14th Ave., lawn weed, *W. Carr 1688* (KE); 3 Jul 1985—weed in flowerbeds at Orton Hall, OSU campus, SW Cols. Quad., *Cusick 24436* (MU, OS).

4. **Euphorbia cyparissias* L.

Cypress Spurge

Naturalized (native of Eurasia)

Leaves numerous, entire; stem leaves linear, inflorescence ones broader, and yellow when young; glands of cyathium 2-horned.

REFERENCES: Selby & Craig 1890:15 (introduced); Cooperrider 1995:47 (illus. p. 46).

HERBARIUM RECORDS: Oct 1902—Franklin Co., *Mark*; 24 May 1963—W of Union Cemetery, open field, E of Dodridge St., Cols., *Cusick*.

5. **Euphorbia dentata* Michx.

Toothed Spurge

Naturalized (native of SW to E U.S.)

Plants erect; blades linear to ovate, toothed; stems and leaves pubescent; bracts under inflorescence green or whitened at base.

REFERENCE: Cooperrider 1995:43 (illus. p. 44).

HERBARIUM RECORDS: 7 Sep 1898—Sharon Twp., *W. Kellerman*; 27 Aug 1960—driveway near 4400 N. High St., Cols., *E. Herrick* (KE); 23 Jun 1987—along the Chesapeake & Ohio RR tracks at Bethel Rd. overpass, Perry Twp., *T. Lammers & Lewis 6129*; 9 Aug 1992—jct. of RR tracks and Darby Creek Dr., SE of Alkire Rd., Pleasant Twp., *Lowden 5016*.

6. *Euphorbia corollata* L.

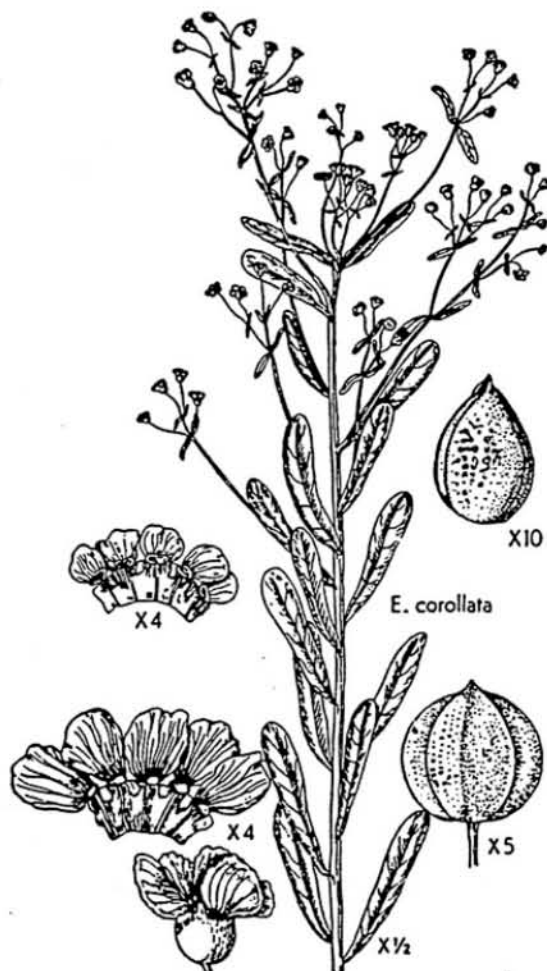
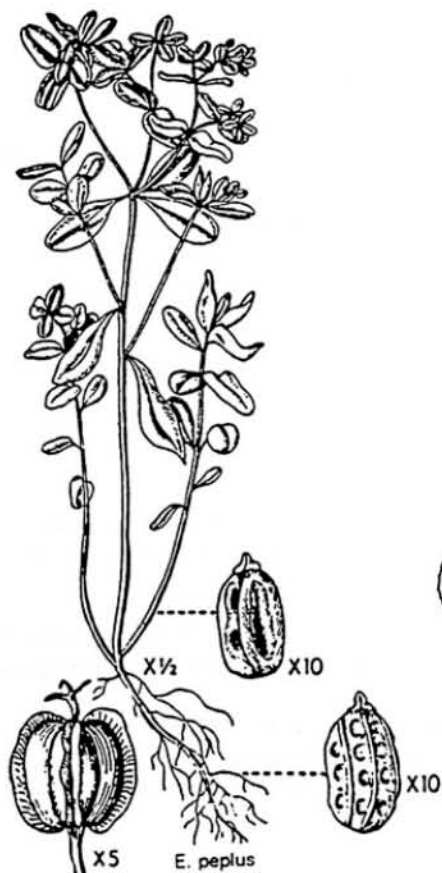
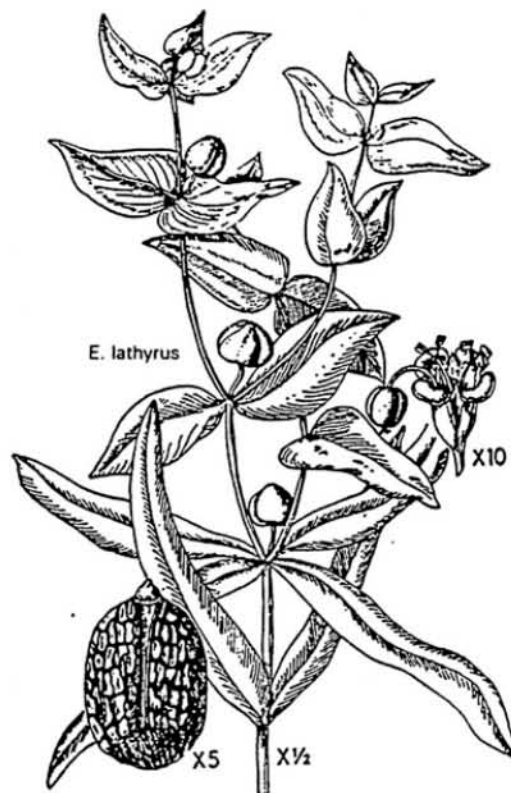
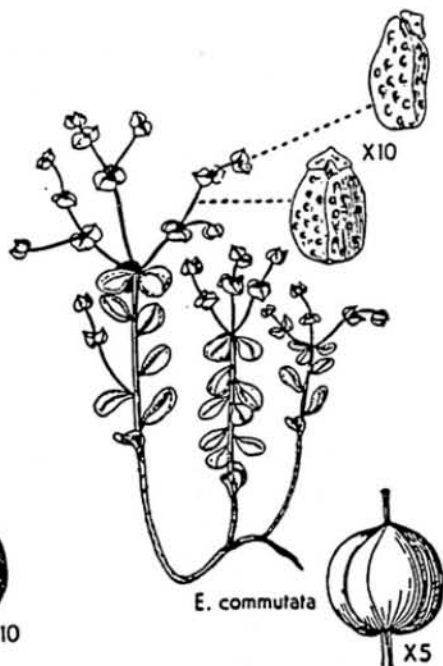
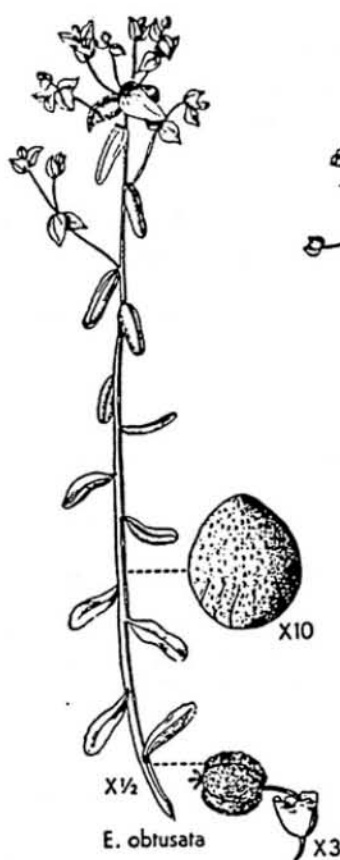
Flowering Spurge

Plants erect, glabrous; cyathia numerous with showy white petaloid appendages; leaves below inflorescence alternate, entire, sessile to short-petiolate, elliptic to oblanceolate.

REFERENCES: Riddell 1834:119 (dry prairies); Sullivant 1840:14; Selby & Craig 1890:15; Cooperrider 1995:50 (illus. p. 49).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [date?]-Cols. near tile works, *Craig*; 5 Aug 1890—New Albany, *Selby* (OS, WOOS); 5 Aug 1890—near New Albany, *Selby*; 8 Jul 1892—Cols., *Bogue*; 1 Aug 1892—near the "Villa," near Cols., *E. M. Wilcox*; 10 Jul 1902—Big Darby, *Jennings*;

EUPHORBIA



EUPHORBIA
CEANOTHUS
RHAMNUS



10 Oct 1902—Cols., *Sanders*; 2 Aug 1932—Red Hills, *Chapman*; 19 Jul 1977—W-facing bluffs above Big Darby Creek, N of Pickaway Co. line, NW of Orient, Pleasant Twp., *Cusick 17034* (KE); 1 Aug 1990—Hoover Dam Park, W of Cabbage Rd. & S of Walnut St., Blendon Twp., *Lowden 4486*; 3 Sep 1992—W side of Cabbage Rd., fairly common in dry openings in brushy field, ½ mi. S of Walnut St., Blendon Twp., New Albany Quad., *McCormac 4893*.

7. **Euphorbia marginata* Pursh

Snow-on-the-mountain

Naturalized (native of C U.S.)

Plants erect; upper leaves subtending inflorescence conspicuously white-margined; stems pubescent.

REFERENCES: Selby & Craig 1890:15 (introduced); Cooperrider 1995:50 (illus. p. 49).

HERBARIUM RECORDS: Aug 6—Galloway, W. & Mrs. Kellerman; Aug 1898—Cols., *Detmers*; 22 Oct 1929—Cols., *J. H. Schaffner*; 28 Jul 1979—soil heaps at bottom of limestone quarry, E bank of Scioto R. about 1 mi. S of Dublin on Rt. 33, *W. Carr 1756*; 24 Sep 1992—deadend of W. Moler Ave., weedy bank above RR, SE Cols. Quad., *Cusick 30601*.

8. *Euphorbia nutans* Lag.

Spurge, Eyebane

Stems erect or ascending; leaves opposite, serrulate, usually red spotted, inequilateral at base; stems glabrous or sparsely pubescent in lines above; capsules glabrous; seeds obtusely angled. Syn.: *E. hypericifolia* L., *E. maculata* L., misapplied, *E. preslii* Guss.

REFERENCES: Riddell 1834:119; Sullivant 1840:14; Craig 1890:54, 99 (#353, this and [*Euphorbia maculata*] are abundant on the campus; they are quite variable; 27 Jul 1882, 1 Jul 1887; University Farm Sep & Oct 1887, 3 Aug 1888); Selby & Craig 1890:15; Cooperrider 1995:54 (illus. p. 53).

HERBARIUM RECORDS: 11 Jul 1892—Cols., *Bogue*; 13 Sep 1895—Cols., *Osburn*; 26 Sep 1936—waste places, Cols., *J. H. Schaffner*; 16 Oct 1936—Cols., *J. H. Schaffner*; 17 Aug 1979—in cinders in railyard S of E 1st Ave., between N 4th St. and Leonard Ave., NW ¼ SE Cols. Quad., *W. Carr 2034*; 17 Aug 1986—Highbanks Metro Park (Delaware Co.), Big Meadows Area, *Morawetz 28* (OS, OWU).

9. *Euphorbia maculata* L.

Prostrate Spurge, Spotted Spurge

Prostrate-ascending much branched pubescent herbs; leaves opposite; blades minutely serrulate to subentire, length more than twice width, typically with a red blotch on upper surface; capsules with appressed hairs; seed-faces with 3-4 cross ridges; seeds quadrangular; cyathium split a short distance on 1 side. Syn.: *E. supina* Raf.

REFERENCES: Riddell 1834:119 (roadsides); Sullivant 1840:14; Craig 1890:54, 99 (#352, University Farm Sep 1887; it is most abundant near the new chemical laboratory, 3 Jul 1887); Selby & Craig 1890:15; Cooperrider 1995:50 (illus. p. 51).

HERBARIUM RECORDS: 24 Aug 1839—Worthington, *J. Paddock Collection* (ILL); Aug 1890—Cols., near RR yards, *E. V. Wilcox*; Jul 1892—Alum Creek Station, *Bogue*; 18 Jul 1898—Hayden's Falls, *W. Kellerman*; 15 May 1986—Oval at OSU campus, Cols., *Blanco*; 29 Sep 1991—Scioto Blvd., just N of Greenlawn Ave. Bridge, W bank of Scioto R., Franklin Twp., *Lowden 4864*.

RHAMNACEAE, Buckthorn Family

Shrubs and small trees; leaves simple, alternate or rarely opposite, with stipules; monoecious or sometimes dioecious; flowers bisporangiate or monosporangiate, perigynous or slightly epigynous; stamens and petals attached to disk lining floral cup; sepals and stamens 5 or 4; petals 5 or 4 or none; carpels usually 3 or 4, united, locules as many; ovules 1 in each carpel.

a Leaves with 3 strong veins from top of petiole; flowers in terminal or axillary corymbs of clustered umbels.

1. CEANOTHUS

a' Leaves pinnately-veined; flowers solitary or in few-flowered sessile or short-peduncled clusters in or above axils.

2. RHAMNUS

1. CEANOTHUS L. Redroot

Shrubs with alternate leaves; flowers bisporangiate, in corymbs of clustered umbels; sepals and stamens 5; petals 5, white; hypanthium adnate to base of ovary; carpels 3, sunken in disk; fruit 3-lobed, carpels separating when ripe.

1. *Ceanothus americanus* L. var. *americanus*

New Jersey Tea

Shrub; leaves alternate, 3 main veins from apex of petiole; blades ovate, apex acuminate; peduncles axillary; flowers in corymbs of clustered umbels; petals white.

REFERENCES: Riddell 1834:119 (dry prairies); Sullivant 1840:14; Selby & Craig 1890:8; Braun 1961:258 (illus. p. 256); Cooperrider 1995:90 (illus. p. 88).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 1 Jul 1891—Georgesville, *Werner* (CLM, OS); 1 Jul 1891—Big Darby, Cols., *Selby* (OS, WOOS); 15 Jul 1892—Georgesville, *Bogue*; Sep 1931—Red Hills, *Chapman*.