

[illegible]

Trees; leaves alternate, simple, blades obovate, entire or with a few large teeth; mostly dioecious, but some perfect flowers may be present; flowers small, greenish, the staminate in peduncled umbel-like clusters, the carpellate epigynous, in few-flowered peduncled heads; sepals 5, minute; petals 5, small or none; stamens 5 or more, at edge of disk; ovary 1-loculed; ovule 1; fruit a drupe.

1. *Nyssa sylvatica* Marshall

Sour-gum, Black-gum, Black Tupelo

Tree; leaves alternate, simple, mostly entire, blades obovate; fruit a dark blue drupe. Dry or moist woodlands.

REFERENCES: Riddell 1834:118 (*Nyssa multiflora*); Sullivant 1840:23 (*Nyssa multiflora* Walter); Selby & Craig 1890:10; Braun 1961:275 (illus. p. 278); Cooperrider 1995:173 (illus. p. 172).

HERBARIUM RECORDS: Aug 1890—Headley's woods, Selby; 1897—Neil's Run, Cols., Ruppertsberg 92; 15 Oct 1902—Neil's Run, Cols., Sanders; 1 & 9 Oct 1903—Cols., J. H. Schaffner, [ca. 1982]—Blendon Woods, fairly common, front of nature center, Owens; 10 Jul 1982—OSU campus, cult. between Main Library & University Hall, T. Lammers 4745; 5 Oct 1982—Scenic Nature Preserve, Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, G. Moore 201.

## SANTALACEAE, Sandalwood Family

Perennial herbs; usually partially parasitic on underground parts of other plants; leaves alternate, blades entire; flowers small, white, epigynous with epigynous hypanthium, in small clusters; sepals 5; petals none; stamens 5, at edge of disk; carpels 3-5, united; locule 1; fruit a drupe, 1-seeded, 4-10 mm wide.

### 1. COMANDRA Nutt.

Flower-cluster terminal, corymbiform; flowers all bisporangiate; fruit dry.

1. *Comandra umbellata* (L.) Nutt.

Bastard Toad-flax

Herb; leaves alternate, blades entire; flowers small, epigynous with an epigynous hypanthium; inflorescence terminal, corymbiform; tepals 5, whitish; stamens 5.

REFERENCES: Riddell 1834:118 (*Thesium umbellatum*; rocky situations); Sullivant 1840:23; Selby & Craig 1890:15.

HERBARIUM RECORDS: 1840—Cols., Sullivant; May 1891—Big Darby Creek, Cols., Selby; 9 May 1891—near Big Darby Creek, Cols., Selby (WOOS); 4 May 1895—Georgesville, Osburn; 1925—Westerville, Big Walnut Creek, dry shale banks, Camp; 2 Jul 1932—Red Hills, Hicks; 11 May 1970—Camp Johnson, 8 mi. N of OSU on N. High, frequent in patches on dry sunny hillsides, Boone 138; 25 May 1982—Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, G. Moore; 24 Jun 1982—Highbanks Metro Park (Franklin & Delaware Cos.), blufftop, G. Moore 297; 17 May 1983—Battelle-Darby, Owens; 10 May 1987—Highbanks Metro Park (Delaware Co.), bluffs, Higgins 15 (OS, OWU); 7 May 1992—Cedar Bluff Overlook, Battelle Darby Creek, Metro Park, Pleasant Twp., Lowden 4931; 14 May 1992—Graessle Rd. Bluff Area, Battelle Darby Creek Metro Park, Pleasant Twp., Lowden 4946; 30 May 1993—Hoover Dam Park, W of Cubbage Rd. & S of Walnut St., Blendon Twp., Lowden 5053.

## CELASTRACEAE, Staff-tree Family

Small trees, shrubs, and woody vines; leaves simple; flowers hypogynous, bisporangiate or monosporangiate; hypogynous disc present; perianth regular; sepals, petals, and stamens 4-5; carpels 2-5, united, locules of ovary and lobes of stigma as many; style short or none; fruit a capsule; seeds with arils.

a Leaves alternate; vines. 1. CELASTRUS

a' Leaves opposite; small trees or erect or prostrate shrubs. 2. EUONYMUS

### 1. CELASTRUS L. Bittersweet

Woody vine; leaves alternate, pinnately veined, serrate; dioecious, each kind of flower with rudiments of the other sporophylls, or some bisporangiate flowers on the same plant as the monosporangiate ones; panicles terminal; petals greenish-white, small; sepals, petals, and stamens 5; carpels 3; fruit orange; seeds 1 or 2 in each locule, arils scarlet.

1. *Celastrus scandens* L.

American Bittersweet, Waxwork, Climbing Staff Tree

Twining woody vine; leaves alternate, oblong-elliptic to ovate; flowers and fruits more than 6 in terminal panicles; capsules dull-orange, arils scarlet.

REFERENCES: Riddell 1834:119; Sullivan 1840:14; Craig 1890:73 (I have not found it within our limits, but there is a specimen in the University herbarium labelled "Olenangy river," which is said to have been found here, 8 Jun 1884, 12 Jun 1888, 7 Jun 1889); Selby & Craig 1890:8; Braun 1961:243 (illus. p. 240); Cooperrider 1995:71 (illus. p. 70).

HERBARIUM RECORDS: 1840—Cols., Sullivan; 189—Olenangy R., Cols. Coll. 7; 8 Jun 1901—Franklin Co., Mead; 30 Sep 1911—1 mi. S of Westerville, fence rows, Hanawalt; 22 May 1980—1 blk. E of N. 4th St. at end of 19th Ave., weedy RR embankment, SW corner NE Cols. Quad., W. Carr 2782 (KE); 15 Sep 1982—Blendon Woods, fairly common, Owens; 2 & 24 Oct 1982—Scenic Nature Preserve, Highbanks Metro Park (Franklin & Delaware Cos.), G. Moore 306-308; 24 Oct 1982—Scenic Nature Preserve, Highbanks Metro Park (Franklin & Delaware Cos.), Robertson 309; 3 Sep 1986—Highbanks Metro Park (Delaware Co.), woods, Watts 346 (OWU).

## 2. EUONYMUS L. Spindle-tree

Small trees and erect or prostrate shrubs; young stems usually green; leaves deciduous, opposite, finely serrate, pinnately-veined; flowers bisporangiate, about 1 cm wide or less, axillary, solitary or clustered; sepals, petals, and stamens 4 or 5; sepals united at base, calyx short and flat; petals spreading, rounded; stamens short, arising at edge of flat disk covering gynoecium; carpels 3-5; capsule 3-5-loculed, red or purple; seeds 1-4 in each locule; aril orange or red.

- a Leaves petioled; flower parts in 4's; fruit smooth.
  - b Twigs with conspicuous corky wings. 1. *E. alatus*
  - b' Twigs not winged.
    - c Petals purple; leaf-blades pubescent beneath. 2. *E. atropurpureus*
    - c' Petals white, green, or yellowish; leaf-blades glabrous beneath. 3. *E. europaeus*
- a' Leaves sessile; flower parts in 5's; fruit tubercled; petals greenish-purple. 4. *E. obovatus*

### 1. *\*Euonymus alatus* (Thunb.) Siebold

Winged Wahoo, Winged Spindle-tree

Adventive or becoming Naturalized (native of E Asia)

Erect shrub; leaves opposite; sepals and petals 4; corky wings on branches conspicuous.

HERBARIUM RECORDS: [date?]-OSU campus, SE of B&Z Bldg., Weishaup; 10 May 1967—SE corner, Law Bldg., OSU, Cols., Cooke & Stuckey; 30 Apr 1977—OSU campus, behind B&Z Bldg., W of green houses, C. Liu 39; 6 May 1986—OSU, S entrance to Campbell Hall, Cols., Cooperband 51; 8 May 1986—behind School for the Deaf, N of Morse Rd., Cols., Taylor-Lehman 65; 15 May 1986—E of Ag. Admin. bldg., Fyffe Rd., OSU campus, Cols., Di Sabato-Aust 34; 16 May 1986—OSU West Campus, E side of Scott Hall, Cols., Hollander 036; 21 May 1986—ravine near jct. of Riverview Park Dr. and Olenangy Blvd., Cols., R. Burnes 36; Jul 1987—Highbanks Metro Park (Delaware Co.), woodland edges, Kasko 74 (OS, OWU); 17 May 1988—W side of Derby Hall, OSU campus, Chinery 46; 23 May 1989—Overbrook Drive Ravine, just E of N. High St., & S of Cooke Rd., Clinton Twp., Lowden 4079; 14 Jun 1989—OSU campus, behind B&Z Bldg., Lowden 4187.

NOTE: Not mapped for Franklin Co. by Cooperrider 1995:69 (illus. p. 65).

### 2. *Euonymus atropurpureus* Jacq.

Wahoo, Spindle Tree, Burning Bush

Shrub or small tree; leaves pubescent beneath; petals 4, purple; fruits smooth.

REFERENCES: Riddell 1834:119 (bottomland); Sullivan 1840:14; Craig 1890:73 (quite common along the river bank E of the island, 18 Jun 1888, 8 Jun 1889); Selby & Craig 1890:8; Braun 1961:241 (illus. p. 242); Cooperrider 1995:68 (illus. p. 65).

HERBARIUM RECORDS: [date?]-Franklin Co., Selby; 30 May 1896—Reservoir Park, M. Wright; 19 Jun 1901—OSU Farm, Mead; 26 Aug 1901—Georgesville, Coberly; 4 Jul 1972—Alton-Darby Creek Rd. and Cole Rd., D. Keil 9333.

### 3. *\*Euonymus europaeus* L.

European Spindle-tree

Cultivated Escape (native of Europe)

Erect or trailing shrub; leaves glabrous beneath; petals 4, green, white or yellowish; fruit smooth.

HERBARIUM RECORD: 31 Jul 1990—along Olenangy R. walk path, Whetstone Park to Northmoor Park, Clinton Twp., Lowden 4460.

NOTE: Not mapped for Franklin Co. by Cooperrider 1995:68.

### 4. *Euonymus obovatus* Nutt.

Running Strawberry-bush, Trailing-euonymus

Trailing prostrate shrub; stems rooting; leaves obovate; fruits tuberculate.

REFERENCES: Riddell 1834:119 (slaty ravines); Riddell 1835:33 (Worthington, slaty ravines); Sullivan 1840:14 (*Euonymus americanus* L. var. *obovatus* Nutt.); Selby & Craig 1890:8 (*Euonymus americanus* L. var. *obovatus* Torr. & A.Gray); Braun 1961:243 (illus. p. 242); Cooperrider 1995:69 (illus. p. 70).

HERBARIUM RECORDS: 1 Jun, 7 Jul, 15 Oct [year?]-Cols., Devol; Jun 1888—Cols., Craig; May 1890—Cols., Selby; 11 May 1895—Alum Creek, Osburn; 7 Sep 1899—Worthington, Selby; 15 May 1901—Worthington, Mead; Sep 1901—Franklin Co., J. H. Schaffner; 10 Oct 1902—Cols., Sanders; 25 May 1971—Don Scott Woods, trailing on forest floor, D. Keil 7325; 4 Jul 1972—Alton-Darby Creek Rd. & Cole Rd., woodlot, trailing shrub, D. Keil 9335; [ca. 1982]—Blendon Woods, common along woodland trails, Owens; 21 May 1986—ravine across from 219 Riverview Park Dr., Cols., R. Burnes 37; 6 Jul 1991—OSU Woods, W of Kenny Rd. & N of Lane Ave., back of Agronomy Turf Grass Research Center, Cols., Clinton Twp., Lowden 4776.

## 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. 1. *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.