

Tree; leaves palmately veined, lobes 5, serrate, narrowly triangular; pith 5-angled; monoecious; flowers monosporangiate, without perianth, but with minute scales, the staminate of many stamens, in heads, the heads in racemes; carpellate flowers cohering in axillary peduncled spherical heads, consisting of 2 styles and ovary; ovules many in each locule, 1 or 2 maturing; fruit multiple.

1. *\*Liquidambar styraciflua* L.

Sweetgum, Red Gum

Native but cultivated

Tree, pith 5-angled; leaves palmately veined, lobes 3 or 5, serrate, narrowly triangular; flowers monosporangiate, without perianth; carpellate flowers in axillary peduncled spherical heads; fruit multiple.

REFERENCES: Craig 1890:79 (only a few specimens on the farm; one is W of the college bldg., the others are on the river bank E of the island); Kellerman & Werner 1893:227-228.

HERBARIUM RECORDS: 1897—OSU Campus, *Ruppersberg* 68; 7 Oct 1901—Cols., City Park, *Hartford*; 26 Oct 1901—Cols., *J. H. Schaffner*; 19 May 1969—OSU, Cols., *Wiley* 22; [ca. 1982]—Blendon Woods, *Owens*; 20 Apr 1988—OSU campus, just N of Women's Fieldhouse, SW of Cunz Hall, *Gerberick* 11; 26 Apr 1988—OSU, N of NE corner of Women's Fieldhouse, *Chinery* 19; 14 Jun 1989—OSU Campus, behind Campbell Hall, Cols., *Lowden* 4155.

NOTE: See Braun 1961:158 (illus. p. 157).

2. **HAMAMELIS** L. Witch Hazel

Shrub; leaves 2-ranked, short-petioled, blades oblique and rounded or cordate at base; buds stalked; flowers bisporangiate or some of them monosporangiate, in axillary clusters, appearing in autumn; sepals, petals, stamens, and staminodes 4; petals yellow, 1.5-2 cm long, ribbonlike; hypanthium adnate to base of carpels; fruit a 2-seeded capsule.

1. *Hamamelis virginiana* L.

Witch Hazel

Shrub-like or tree-like, buds stalked; leaves 2-ranked, pinnately veined, short-petioled; blades oblique, margins wavy; flowers in axillary clusters; sepals, petals, stamens and staminodes 4; petals yellow, ribbonlike.

REFERENCES: Riddell 1834:117; Sullivant 1840:10; Selby & Craig 1890:10; Braun 1961:158 (illus. p. 157).

HERBARIUM RECORDS: Nov 1888—Neils Run, Cols., *Craig*; 1890—Neil's Run, Cols., *Selby* (WOOS); 1897—Neal's [Neil's] Run, *Ruppersberg*; 12 Oct 1897—Cols., *Fullmer*; 4 Oct 1901—N Cols., *Eckman*; 16 Nov 1906—N Cols., *Spease*; 30 Oct 1982—Blendon Woods, near Duck Blind, *Owens*; 5 Apr 1986—Highbanks Metro Park (Delaware Co.), orchard bluffs, closed forest, *Wutsberger* 873 (OWU).

**ULMACEAE**, Elm Family

Trees and shrubs; leaves alternate, 2-ranked, simple, petioled, stipules early deciduous; flowers hypogynous or perigynous, bisporangiate or monosporangiate; petals none; stamens usually the same number as sepals and opposite them; carpels 2, united; styles short or absent; stigmas 2; ovary 1-loculed, with 1 ovule; fruit a samara or a drupe.

*Zelkova serrata* (Thunb.) Mak. is Asiatic in origin and locally planted as an ornamental tree on the OSU Campus (24 May 1967—OSU, parking lot behind Campbell Hall, Cols., *Cooke & Stuckey*; 22 Apr 1986—OSU Campus, W of Campbell Hall, Cols., *Di Sabato-Aust* 25; 14 Jun 1989—behind Campbell Hall, OSU Campus, Cols., *Lowden* 4152). This tree has a round-topped crown, leaves simple, 2-ranked, alternate, pinnately veined, flowers short-pedicled.

a Flowers in fascicles or racemes, appearing in spring before the leaves or in autumn; sepals united; leaves pinnately veined; fruit a samara. 1. **ULMUS**

a' Flowers solitary or in clusters of a few in axils of leaves of the season; sepals separate; leaves with 3 main veins from top of petiole; fruit a drupe. 2. **CELTIS**

1. **ULMUS** L. Elm

Trees; leaves serrate or doubly serrate, often oblique at base; flowers bisporangiate, small, red-purple, yellow, or green, in fascicles or racemes, in most species appearing before the leaves; calyx 4- to 9-lobed; fruit a 1-seeded samara.

Several cultivated species of *Ulmus* are included in the key below.

ULMUS  
CÉLTIS



- a Lobes of calyx usually equaling or shorter than tube; flowers appearing in spring.
- b Flowers and fruits long-pediceled, soon drooping; stigmas white or green; fruits ciliate.
  - c Flowers in umbellate clusters; fruits elliptic, about 1 cm long, the sides glabrous. 1. *U. americana*
  - c' Flowers in racemes; fruits elliptic, 1.5 to 2 cm long, the sides pubescent. 3. *U. thomasii*
- b' Flowers and fruits short-pediceled, in dense clusters, not drooping; fruits not ciliate.
- d Fruits nearly circular, 1-2 cm wide, pubescent at middle of each side. 2. *U. rubra*
- d' Fruits glabrous.
  - e Fruits nearly circular, slightly broader than long, 1-1.5 cm in diameter, seed near middle; small tree with slender branches. *U. pumila* L., Siberian Elm
  - e' Fruits longer than broad, obovate, 2-2.5 cm long, seed above middle; stigma white. *U. procera* Salisb., English Elm
- a' Lobes of calyx longer than tube; flowers in fascicles, appearing in autumn; fruit glabrous; leaf-blades simply serrate or nearly so. *U. parvifolia* Jacq., Chinese Elm

1. †*Ulmus americana* L.

White Elm, American Elm

Twigs glabrous or pubescent; leaves glabrous but usually roughish above, pubescent or glabrous beneath; flowers long-pediceled; samaras deeply notched at apex, margins ciliate.

REFERENCES: Riddell 1834:118; Sullivant 1840:22; Craig 1890:100 (common on the campus and in the woods, 14 Apr 1883, 23 Apr 1885, 12 Mar 1887, 30 Mar 1888, 18 Mar 1889); Selby & Craig 1890:15; Kellerman & Werner 1893:227 (grows along the entire river [Olentangy] front); Braun 1961:135 (illus. p. 134).

HERBARIUM RECORDS: [no date or collector]—Cols. (URB, mixed with *Ulmus rubra*); 4 Apr 1892—OSU, Cols., Werner, 1897—City Park, Ruppertsberg 36; 20 Aug 1899—Scioto R., Cols., Selby; 22 Aug 1899—S Cols., Selby; Nov 1900—Cols., J. H. Schaffner; 11 May 1901—Marble Cliff, Mead; 27 Sep 1901—Cols., J. H. Schaffner; 1 Nov 1901—OSU Campus, Cols., Hartford; 6 & 17 May 1902—Cols., J. H. Schaffner; Spring 1903—Cols., J. H. Schaffner; 26 May 1934—OSU Campus, Weishaup; 17 Jul 1971—W of Olentangy River Rd., approx. ½ mi. N of Henderson Rd., Clinton Twp., Roberts 1347; 30 Aug 1982—Highbanks Metro Park (Franklin & Delaware Cos.), floodplain, Brauning 320 & 321; 5 Apr 1983—W side of Rt. 23, ¼ mi. N of Flint Rd., large isolated tree in fencerow, Sharon Twp., Powell Quad., Cusick 2236; 8 Apr 1986—Weybridge Ave., approx. 90 m W of intersection with Kenny Rd., woodlot, Cols., Taylor-Lehman 8; 21 Jul 1986—Highbanks Metro Park (Franklin Co.), streambanks, Kasko.

2. *Ulmus rubra* Muhl.

Red Elm, Slippery Elm

Twigs rough, scabrous pubescent; leaves very rough above, densely pubescent beneath; samaras eciliate, pubescent at middle of each side; flowers short-pediceled. Syn.: *U. fulva* Michx.

REFERENCES: Riddell 1834:118; Sullivant 1840:22; Craig 1890:100 (several trees in the woods and along the river, 11 Apr 1883, 23 Apr 1885, 22 Mar 1889); Selby & Craig 1890:15; Braun 1961:133 (illus. p. 134).

HERBARIUM RECORDS: [no date or collector]—Cols. (URB, mixed with *Ulmus americana*); 1892—Franklin Co., Bogue; 3 Apr 1892—Cols., Bogue; 1897—City Park, Ruppertsberg 29; 4 Oct 1901—OSU Campus, Cols., Hartford; ca. 1982—Blendon Woods, common, Owens.

3. †*Ulmus thomasii* Sarg.

Rock Elm, Cork Elm

Twigs corky ridged; flowers long-pediceled; samaras shallowly notched at apex, margins ciliate. Syn.: *U. racemosa*

Thomas

REFERENCES: Craig 1890:100 (there is a specimen along the river W of the university); Selby & Craig 1890:15; Kellerman & Werner 1893:227 (this tree can not be found in the locality named); Braun 1961:135 (illus. p. 134); Roberts & Cooperrider 1982:50; McCance 1984:A-173.

HERBARIUM RECORDS: 20 May 1893—Fishingers Mills, Scioto R., W. Kellerman; 20 May 1893—Cols., W. Kellerman (BGSU); 20 May 1895—Scioto R., above bridge, W. Kellerman; 5 Jun 1895—Cols., W. Kellerman; 31 May 1896—Cols., E. M. Wilcox; Oct 1902—Cols., J. H. Schaffner.

2. **CELTIS** L. Hackberry

Tree; leaf-blades serrate, 3 main veins from top of petiole; monoecious; sepals 5, greenish, separate; staminate flowers in small clusters near base of branches of season, stamens 5, exsert; carpellate flowers solitary or 2 together in axils of upper young leaves, sometimes with anthers on short filaments; stigmas divaricate, recurved; fruit a drupe.

The Sugar Hackberry, *Celtis laevigata* Willd., is a cultivated tree on the OSU Campus.

1. *Celtis occidentalis* L.

Hackberry

Tree, bark with corky ridges; leaves simple, sharply serrate, inequilateral, somewhat paler green beneath, 3 principal veins from top of petiole; flower solitary; fruit a drupe. Syn.: *C. crassifolia* Lam.

REFERENCES: Riddell 1834:118 (bottomland); Sullivant 1840:22; Craig 1890:100 (common in the woods and along the river, 1 May 1889); Selby & Craig 1890:15; Braun 1961:137 (illus. p. 134).

HERBARIUM RECORDS: 1890—Cols., *E. V. Wilcox*; 5 Jun 1895—Cols., *W. Kellerman*; 10 Oct 1896—Cols., *Logsdon*; 1897—OSU Campus, *Ruppersberg*; 20 Aug 1899—Cols., *Selby*; 11 May 1901—Marble Cliff, *Mead*; 31 Dec 1901—Cols., *J. H. Schaffner*; 20 Oct 1902—Cols., *J. H. Schaffner*, [ca. 1982]—Blendon Woods, fairly uncommon, large specimen along Ripple Rock Trail, *Owens*; 30 Aug 1982—Highbanks Metro Park (Franklin & Delaware Cos.), floodplain, *Brauning 317*; 1 Sep 1982—Highbanks Metro Park (Franklin & Delaware Cos.), floodplain, *Brauning 318*; 8 Sep 1982—Highbanks Metro Park (Franklin & Delaware Cos.), floodplain, *G. Moore 319*; 21 Jul 1986—Highbanks Metro Park (Franklin Co.), moist woods, *Kosko*; 23 Jun 1991—E bank of Scioto R., James J. Thomas Park, from Lane Rd. to Lane Ave., Perry Twp., *Lowden 4710*.

## CANNABACEAE, Indian Hemp Family

Erect or twining herbs; leaves petioled, palmately lobed, cleft, or compound, margins of lobes or leaflets serrate; dioecious; flowers small, green; perianth regular; staminate flower of 5 separate sepals and 5 stamens; carpellate flower with cup-shaped calyx enclosing the 2 united carpels; styles and stigmas 2; ovary 1-loculed, ovule 1; fruit an achene. (Cannabaceae).

- a Leaves palmately lobed, the lobes broad; plants twining. 1. **HUMULUS**  
a' Leaves palmately compound or divided, the 3-7 leaflets or segments linear to lanceolate; plants erect. 2. **CANNABIS**

### 1. HUMULUS L. Hops

Perennial vines; leaves opposite, palmately lobed or some of them unlobed; staminate flowers in panicles, carpellate in short axillary spikes, 2 flowers together subtended by a foliaceous bract; fruit covered by the calyx, each two fruits covered by a bract.

- a Leaf blades usually 3-lobed, sinuses rounded, or upper leaves not lobed; bracts of inflorescence not ciliate in fruit. 1. *H. lupulus*  
a' Leaf blades usually 5- to 7-lobed, sinuses narrow; bracts of inflorescence ciliate in fruit. 2. *H. japonicus*

#### 1. \**Humulus lupulus* L.

Common Hops, Hops Vine

Native and Naturalized

Plants twining; leaf blades 3-lobed, upper leaves not lobed; pistillate bracts entire.

REFERENCES: Riddell 1834:118 (bottomland); Sullivant 1840:22; Craig 1890:100 (not rare; on the island in the NW corner and growing on the S line fence, it has been growing wild on the island for some years); Selby & Craig 1890:15 (introduced).

HERBARIUM RECORDS: 189—OSU Farm, Cols., *Selby*; 29 Aug 1892—Cols., *Bogue*; 7 Oct 1905—Franklin Co., *Fischer*; 2 Oct 1934—Linden, *Chapman*; 6 Aug 1982—Cooper Rd., Blendon Twp., *Owens*.

#### 2. \**Humulus japonicus* Siebold & Zucc.

Japanese Hops

Adventive (native of E Asia)

Plants twining; leaf blades 5-7 lobed; pistillate bracts spinulose-ciliate.

HERBARIUM RECORD: 25 Jul 1923—Cols., persistent after cultivation, *J. H. Schaffner*.

### 2. CANNABIS L. Hemp

Tall annual; leaves stipuled, alternate above, opposite below; flowers in axillary paniculate clusters.

#### 1. \**Cannabis sativa* L.

Hemp

Naturalized (native of Eurasia)

Stems erect; leaves palmately compound; leaflets 3-7, linear to lanceolate.

REFERENCES: Riddell 1834:118 (naturalized); Sullivant 1840:22 (naturalized); Selby & Craig 1890:15 (introduced).

HERBARIUM RECORDS: 18 Sep 1900—S Cols., *Wyman & Tyler*, Sep 1933—Cols., cult., *J. H. Schaffner*; 15 Sep 1980—Tamarack Circle, disturbed area behind shopping center, NE Cols. Quad., *Cusick 20414* (MU, OS).

## MORACEAE, Mulberry Family