Woodies

Extracted from Designing with Nature, UP UR C 25.
Revised 4th May 2015

"Let's go down to Tampico, lay on the beach all winter long"
Henry Holyoak Lightcap in Fool's Progress, Edward Abbey 1988

WOODIES AN ARTFICIAL GROUP	
ACERACEAE	Acer
ANACARDIACEA	Rhus
	Toxicodendron
AQUIFOLIACEAE	Ilex
	Nemopanthus
ARALIACEAE	misc dicots.docx
BETULACEAE	Alnus
	Betula
	Carpinus
	Corylus
	Ostrya
CLETHRACEAE	Clethra
CORNACEAE	misc dicots.docx
CUPRESSACEAE	gymnosperms.docx
DIOSCOREACEAE	Dioscorea
EBANACEAE	Diospyros
ELAEAGANACEAE	Sheperdia
ERICACEAE	Andromeda
	Arctostaphylos
	Chamaedaphne
	Gaultheria
	Gaylussacia
	Kalmia

	Fagus		Fraxinus
	Quercus		Syringa
GROSSULARIACEAE	Ribes	PLATANACEAE	Platanus
HAMAMELIDACEAE	Fothergilla	RHAMNACEAE	misc dicots.docx
	Hamamelis	RUBIACEAE	misc dicots.docx
	Liquidamber	RUTACEAE	Ptelea
HIPPOCASTANACEAE	Aesculus		Zanthoxylum
HYDRANGEACEAE	Hyrangea	SALICACEAE	Populus
HYPERICACEAE	misc dicots.docx		Salix
JUGLANDACEAE	Carya	SIMBARUBACEAE	Ailanthus
	Juglans	STAPHYLEACEAE	Staphylea
MORACEAE	Maclura	THYMELAECEAE	Dirca
	Morus	TILIACEAE	Tilia
MYRICACEAE	Comptonia	ULMACEAE	Celtis
	Myrica		Ulmus
NYSSACEAE	Nyssa	VITACEAE	Parthenocissus
OLEACEAE	Chionanthus		Vitis

ALPHABETICAL LIST OF PLANT MATERIALS

This section contains material on trees, shrubs, & woody vines. Unlike the other sections, there is no taxonomic basis for the following species, only that they have woody perennial stems. This is a strictly artificial group. Classic prairie shrubs are given some treatment here, but are treated more extensively in the forb sections if they behave as forbs in fire driven systems. Gymnosperms, legumes, & roses are in their respective sections.

"I am the Lorax, I speak for the trees. I speak for the trees, for the trees have no tongues." Theodor Seuss Geisel

Classical tree names are feminine in gender, in spite of the endings that suggest masculine gender. The Romans believed every tree was the home of a female spirit, a dryad or tree nymph. These names include *Taxus, Quercus, Fagus, Prunus, Malus,* &c. *Pinus strobus* appears incorrect, but *strobus* is a noun used as a specific epithetic that is independent of the gender & number of the species. *Strobus* is one of the many epithets that were formerly capitalized.

ACERACEAE MAPLES *Aceraceae* is a family of 1 genus & about 111-126 species (about 40 species in the northern North America) primarily of north temperate regions. Trees with watery, sugary sap, leaves veined, opposite simple & palmately lobed or pinnate with 3-7 leaflets, flowers bisexual or unisexual, small & regular, sepals 4-5, petals 4-5, fruits of paired samaras, each with a basal seed & a long broad wing. Some authors include this family in the *Sapindaceae.*

ACER Linnaeus 1753 MAPLE *Aceraceae Acer* (classically A-ker, or typically AY-ser) sharp, vigorous, from Latin *acer, acris*; New Latin, from Ovid's classic Latin name for the maple tree, either from the woods use for lances or its leaf shape; akin to Old High German, Old Saxon, & Middle Low German *ahorn,* maple tree, Old Danish *ær,* Greek *akastos*, a maple tree, *akarna,* laurel, & probably to Latin *acer* sharp. Etymologically linked to oak, acorn, & acre. A widely distributed genus of about 111 species of trees & shrubs, primarily of the north temperate regions, having simple or compound leaves, polygamous or dioecious flowers, & winged fruits. Fruits are winged nutlets or *samarae* (double samaras with opposite wings, thickened at the lower edges. Placed in the *Sapindaceae* by some authors.

ACER RUBRUM & *A SACCHARINUM* CULTURAL NOTES.

RED MAPLE & SILVER MAPLE seeds ripen in late spring and quickly drop to the ground. Seeds are generally considered germinable without pretreatment; in nature, they germinate almost immediately. Both species germinate in 21 days at 20º C. Dormancy & cold moist stratification requirements for *A rubrum* have been noted in Canadian seed sources. Preferred field sowing & nursery practice is to sow soon in spring soon after collecting. Maple seed is usually sown 0.5 - 1.0 cm deep by drilling or broadcast. Germination is epigeal. (yy92).

RED MAPLE ripens in May & will germinate immediately. Soaking in cold running water may leach inhibitors & hasten germination. If the pericarp dries, brief cold moist stratification may be necessary. 30 days cold moist stratification beneficial. (dh87)

Spring ripening maples should be sown immediately without drying. (hk83) Fall ripening species should be sown

Stu Pequinquot, former Chief, Illinois Department of Conservation (now DNR) Division of Forestry & former site manager of the Mason State Tree Nursery, sites no known success with fall seeding of spring ripening maples. (Personal communication)

The Morton Arboretum, Lisle, Illinois reports heavy rodent predation & delayed & reduced development 3 - 5 years after a fall seeding. (Personal communication)

Viability of seed may vary from tree to tree and year to year, possibly due to poor cross-pollination, drought, predator avoidance. Check the seeds for well-developed embryos before harvesting from a particular tree. Many trees produce a large crop of seedlings that may be a source of prop stock. Cullina code A seeds will germinate within 4 weeks sown at 70ºF, or B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF, * seeds are hydrophilic, intolerant of dry storage. (cu02)

Cuttings are difficult. Bud grafting is traditionally used onto seedling stock of the same species. (cu02)

Most maples have sugary sap, but *A saccharum* sap has twice the sugar of other species. Several early flowering species introduce a chemical in the sap at bud-break that gives the sap an unpleasant taste, limiting their useful sugaring season.

Upland game birds use seeds & buds for food. Songbirds (esp Evening Grosbeaks) use seeds, buds, & flowers for food. Terrestrial furbearers (esp squirrels) use seeds, flowers, bark, & twigs for food. Small mammals use seeds for food. Deer eat twigs & foliage. (Anon 1981)

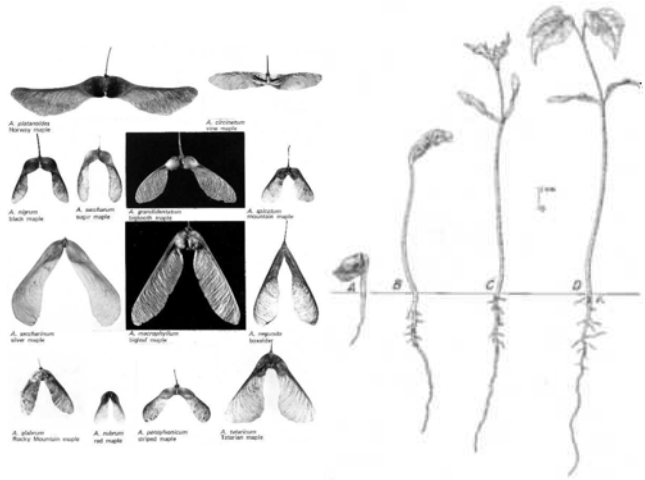


Photo & seedling drawing courtesy of the US Forest Service USDA-NRCS PLANTS Database.

Acer X freemanii E Murray FREEMAN'S MAPLE
distribution/range: Kentucky, Maine, North Carolina, New York, Ohio, Wisconsin, Ontario, & Quebec.
[*Acer rubrum* L X *A saccharinum* L]

Acer ginnala Maxim. AMUR MAPLE (*ginnala* a native name)
distribution/range: Introduced from Asia, a rare escape, ecologically invasive.
C3
Associates: Wind & insect pollinated.

Acer ginnala
Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

Habitat: This is the dominant overstory tree in the BOX ELDER barrens of northwest Illinois, a truly imperiled system (Ed Collins personal communication). Moist woods, riverbanks, alluvial soil, & waste places. On stream banks, edges of swamps & lake shores. distribution/range: Native to North America; the species ranges almost across North America. Most common in the Mississippi Valley, but range extends from New York State & southern Canada to the eastern foothills of the Rockies.
Culture: propagation: Impervious seed coat. 90 days cold stratification or dormant seeding is required; extremely dry seed requires a hot water soak or mechanical or chemical rupture of the pericarp before stratification. Germination can be 50-100% in 1-4 weeks if a hole is made in the seed coat by cutting off tip or by removing the seed coat. Empty seeds are common.

asexual propagation: Softwood cuttings root easily, useful for increasing cultivars.

cultivation: Transplants easily; performs well on poor, wet, or dry sites, in areas or soils of extreme pH levels. Hardy to zone 2. Withstands flooding. Extremely fast growing, especially when young.
Description: Native, medium tall, deciduous tree, irregular, spreading, upright crown, 30' to 60' tall, wide growing, coarse texture; bark gray-brown, ordinary-looking, slightly ridged; new shoots have a waxy "bloom" & appear blue or white mixed with green, red in winter; wood weak, close-grained, soft, creamy white, with red streaks; leaves opposite, pinnately-compound with 3 to 9 leaflets, leaflets 2" to 4" long; petiole 2" to 3" long, light green color above, gray-green below; one of the earliest maples to develop fall color, but not very showy, yellow-green to very pale yellow, often brownish; flowers yellowish green & abundant, dioecious, male flowers in clusters, female in pendulous racemes, usually plentiful; fruit is a samara, set in pairs at a narrow angle, ripening September to October, profuse, persisting into winter. key features: Pinnately compound leaves resemble those of *Fraxinus*, but leaflets are irregularly shaped; green twigs with reddish brown upper surface have waxy bloom that can be rubbed off; broken twig has a strong, acrid smell; buds covered with silky white hairs; white, solid pith in twigs.
Comments: status: phenology: Blooms 3-4(-5). Fruits ripen in September - October. C3. Pioneer tree on disturbed sites, potentially invasive. BOX ELDER IS a tree whose virtues elude most people at this time, especially narrow-minded botanists that never climbed a Box Elder as a child. Landscape uses, an "alley cat" tree; used in shelterbelt plantings; has possibilities on difficult sites & areas that flood seasonally. As a quick growing tree, species has potential in carbon sequestering & biomass production & as a quick overstory in savanna & woodland restorations, forested wetland mitigations, savanna understory seed production plots, & wildlife plantings. Trunks can "weep" from internal decay for 15 to 25 years or more before the tree disintegrates in a storm, for the weak wood sometimes breaks easily in storms. Seeds germinate well, possibly creating a weed problem. A short-lived tree but some specimens grow to impressive size. "A common tree of stream bottoms which is much used in street & ornamental planting. It grows quickly but is fragile & short-lived." (ewf55)

Better an "alley cat" tree than *Ailanthus*, the ratlike tree.

In cleaning our property, we had spared a few trees for their wildlife value & for their canopy. Species appears to be stressed & ultimately killed by annual burning in the woods on our farm (or by the combined climatic impact of the combined Bush administrations. Trees from 8-16" dbh in burned woodlands are dead or dying after 7-15 years of fire. *C'est la vie.*
Associates: Endomycorrhizal. Species is of high value to birds. Used by grosbeaks, porcupine, chipmunk, deer, moose, & squirrel. Huge flocks of migratory birds, such as Evening Grosbeak, Cedar Waxwing, etc., usually strip all seeds from this tree as they pass through. Species is susceptible to a wide range of diseases & insect pests: leaf spot diseases; anthracnose can be extreme in rainy weather; cankers, sapstreak & trunk decay; caterpillars including forest tent caterpillar, green striped maple worms; Boxelder bug; assorted leafhoppers, borers, mites, aphids & scales. However, one man's pathogen is another man's biodiversity, & arthropod production is a key to wildlife plantings, a fuel for ecosystems.

ethnobotany: Allergenic windborne pollen. Used for food. Sap can be used as a source of maple sugar. Used as medicinal plant by Ojibwa (sm32). Inner bark used as an emetic. Charcoal used for ceremonial body paint & for tattooing. Kiowa burned wood on altar during peyote ceremony (Uphof 1968). Wood used for woodenware, paper pulp, cooperage, inexpensive furniture, finished interiors of houses (Uphof 1968). BOX ELDER wood takes colorful dyes well & is often used for small turned objects such as wooden pens & bowls. The white wood often has natural red streaks.
VHFS: Var *interius* (Britton) Sarg. [*Acer interius* Britt, *A negundo* L subsp *interius* (Britt) A&D Löve, *Negundo aceroides* (L) Moench subsp *interius* (Britt) A&D Löve, *N interius* (Britt) Rydb]

Var *negundo* [*Negundo aceroides* (L) Moench, *Negundo negundo* (L) Karst] This is the typical eastern variety, occurring throughout eastern North America.

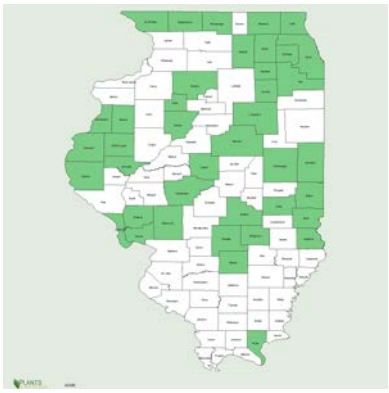
'Flamingo' - A highly promoted cultivar with mature leaves that resemble '*Variegatum*'. The new growth, however, emerges bright pink for an interesting effect in spring. This effect can be enhanced by pruning the plant to promote vigorous shoot extensions.
'Kelly's Gold' - Another form with bright gold leaves often sold by specialty catalogs.
'*Variegatum*' - (SILVER LEAF BOXELDER) - A noteworthy small, variegated tree; a female clone. Selected in France in 1845, it is not as hardy as the species. Leaves have a broad, white margin; fruits also variegated. Specimens may throw a totally green or white shoot on occasion, which should be pruned out. Best in zone 5 or warmer.
'*Violaceum*' - Selected to capitalize on the attractive, glaucous waxy coating on the young branches of this species. This form features young shoots that are deep purple with a pronounced bloomy coating, otherwise similar to the species.



Acer negundo

Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image.

Acer nigrum F Michaux BLACK MAPLE, aka BLACK SUGAR MAPLE, SUGAR TREE, (*niger, nigra, nigrum* (NIG-er) from Latin for black; shiny black, as opposed to *ater*, matt black.)



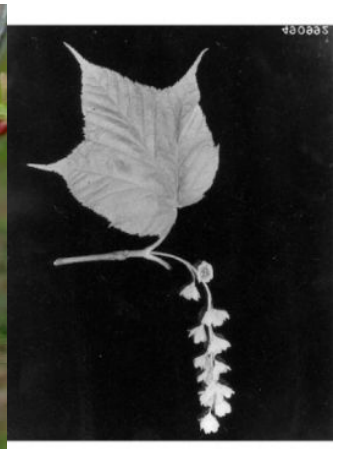
Habitat: Moist woods & alluvial soils. Becomes more common westward, replacing the SUGAR MAPLE. distribution/range: Known but not mapped from Whiteside Co.
cultivation: Shade tolerant & tolerant of moist sites. Optimum pH 6.7.
Description: The prairie version of the SUGAR MAPLE, complete with more below ground mass than *A saccharum*, deep green, drooping foliage, more open than sugar maple, medium tree, 50-75' tall, 35-55'wide, excellent yellow fall color. Spring sugar. (rrn97).) "Leaves are velvety-hairy beneath, commonly with somewhat decurved or drooping sides with rounded teeth nearly as broad as long." (Ilpin)
"Very unusual in the county. We have found a few trees in Kishwaukee River gorge, the "dells", Rock Cut Forest Preserve & in DeKalb Co in the Co Forest Preserve on Kishwaukee River near Genoa." (ewf55)
VHFS: [*Acer nigrum* Michx f var *palmeri* Sarg, *A saccharum* Marshall subsp *nigrum* (Michx f) Desmarais, *A saccharum* Marshall var *nigrum* (Michx f) Britt, *A saccharum* Marshall var *viride* (Schmidt) E Murray, *Saccharodendron nigrum* (Michx f) Small]



Leaf photo W.D. Brush. Provided by National Agricultural Library. Originally from US Forest Service. United States, DC, Washington. USDA-NRCS PLANTS Database. Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. Not copyrighted image.

Acer pensylvanicum Linnaeus *WI MOOSEWOOD, aka GOOSEFOOT MAPLE, STRIPED MAPLE, (*pensylvanicus -a -um* (pen-sil-VAHN-i-kus) of Pennsylvania) STRIPED MAPLE is in reference to the white-striped bark.
Habitat: Northern moist woods. Understory tree in wooded areas. distribution/range: Native to eastern United States & adjacent Canada.
Culture: propagation: By seed.
cultivation: Requires partial shade & cool, moist, slightly acidic soil; intolerant of pollution, drought, heat. Hardy to zone 3. This species is not well suited to typical conditions of landscaping. It should not be used unless an appropriate growing site exists.
Description: Small, deciduous, native tree, typically 15' to 20' or taller, develops a broad, uneven, flat-topped or rounded crown, often irregular & open, texture medium to coarse, often shrub-like in the forest; bark of young branches longitudinally striped white or green, showy; leaves opposite, 3-lobed at apex, 5" to 7" long & wide, bright green; fall color striking clear yellow, showy; flowers, yellow in pendulous chains, in May; fruits are long samaras in pendulous chains; key features: Flowers in drooping raceme; leaves 3-lobed, sinuses (indentations) between main lobes sharp (fh). Terminal bud absent or present, buds are purplish red & stalked with valvate scales; striped bark.
Comments: status: Special Concern in Wisconsin. phenology: Blooms May. Landscape uses include naturalized plantings, along edge of woods, specimen in shaded areas.
Associates: Susceptible to canker under stress.
ethnobotany: Susceptible to mower injury.
VHFS: Horticultural cultivars or varieties: '*Erythrocladum*' - (‘*erythrocladum*’ (e-rith-ro-KLA-dum) with red shoots.) An attractive selection that, though difficult to propagate, is available from specialty nurseries & seen in gardens. Young stems are a bright red coloration after the leaves fall. The effect is very attractive coupled with the white stem striations, making this plant a fine choice for winter interest.





Acer pensylvanicum

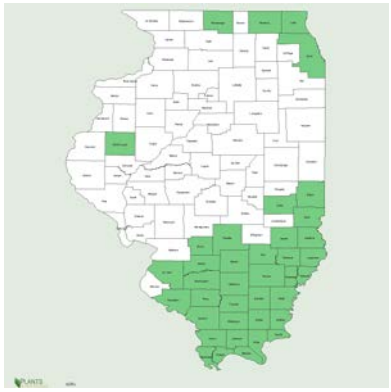
Line drawing courtesy of Kentucky Native Plant Society. Leaf photo Credit: Photo by Leo Michels - Source: http://www.imagines-plantarum.de/ Public domain image. 2nd leaf photo by National Agricultural Library. Originally from US Forest Service. United States, DC, Washington. USDA-NRCS PLANTS Database.

Acer platanoides Linnaeus * NOX CT, MA NORWAY MAPLE, (*platanoides* platanus-like, from *platanus* for the genus *Platanus* the plane tree, & *oides* for like, similar)
distribution/range: Introduced & naturalized, ecologically invasive. “Much planted as a shade tree. It resembles the hard maples. It does not reproduce here.” (ewf55) “Species has milky sap present in the leaf stalks; leaves are nearly as broad or a little broader than long.” (Ilpin) Leaves with 5-7 lobes, sinuses rounded. C3.
VHFS: [*Acer platanoides* L var *schwedleri* Nichols]

Acer platanoides

1st leaf photo by National Agricultural Library. Originally from US Forest Service. United States, DC, Washington. USDA-NRCS PLANTS Database. Seed photo Steve Hurst USDA-NRCS PLANTS Database. Not copyrighted image. 2nd leaf photo W. D. Brush, National Agricultural Library. Originally from US Forest Service. United States, DC, Washington. USDA-NRCS PLANTS Database.

Acer rubrum Linnaeus RED MAPLE, aka SCARLET MAPLE, SWAMP MAPLE, SOFT MAPLE, CAROLINA RED MAPLE, DRUMMOND RED MAPLE, SWAMP MAPLE, WATER MAPLE, rubrum (RUB-rum) red for the autumn color.)
Habitat: Swampy or boggy areas, low woods, moist upland slopes, bluff tops, rocky woods, alluvial soils. Site adaptable, either very wet or well drained but moist woods.
distribution/range: Native to a very large geographic & climatic range, eastern United States & adjacent Canada. Largely absent from the Prairie Peninsula proper in Illinois & Iowa.



Culture: Propagation is by seed; RED MAPLE is one of the earliest flowering trees of the spring. Seeds mature & disperse in spring. Seeds generally germinate in summer soon after dispersal. Some germination may be delayed until the second summer. Growth rate rapid. Seedling vigor medium. Vegetative spread rate none. Seed spread rate moderate. 12,704 (jfn04); 22,000 (ecs); 22,720 (usda); 23,000 (sona) seeds per pound.

asexual propagation: No longer grafted due to incompatibilities, cultivars are grown from stem cuttings or tissue culture.

cultivation: Easily transplanted, established, & easy to grow. Tolerant of coarse, medium, & fine textured soils. Anaerobic tolerance medium. CaCO3 tolerance high. Drought tolerance low. Fertility requirement medium. Salinity tolerance none. Shade tolerant. pH 4.0-7.4. Optimum pH 6.0 Hardy to zone 3, but plants must have originated from the northern part of its range. Tolerant of many conditions & adaptable, prefers moist, acidic soils; tolerates occasional flooding & wet soils; on alkaline soils develops manganese chlorosis; full sun best for landscape development, but can tolerate partial shade.

Description: Deciduous native tree, pyramidal or elliptical when young, becomes more spreading with age, eventually developing a more or less rounded or oval outline, a medium to large tree, 40' to 70' tall, but can be over 100' tall, texture is medium, relatively fast growing. Minimum root depth 30". Bark attractive & useful ornamental feature, young bark is smooth & light, ash-gray, almost silver, older branches & trunk are covered with scaly gray brown bark, bark contrasts well with early spring flowers; gray to red twigs in winter. Leaves opposite, 2" to 4" long, 3 or 5-lobed, medium green above, gray-green or frosty below; fall color varies from greenish yellow to vibrant scarlet to burgundy (variously brilliant red orange, yellow-red, or yellow fall color), can be very striking; many cultivars have been selected for red fall foliage, often one of the first trees to color. Flowers red or orange, in late March & April before leaves, showy, monoecious with male & female flowers on separate branches of a tree; some flowers may be perfect as well, female flowers more showy with redder color; fruits in spring are samaras, 0.75" long, often display some red color, having ornamental appeal. key features: "Flowers are born from dense clusters of lateral buds; leaves are white or gray & either smooth or hairy on the lower surface; nearly as broad as long; shallow lobes." (Ilpin) Ashy-gray bark, clusters of "Christmas ornament" flower buds along with smaller vegetative buds; twigs produce an odor when broken, confused with *Acer saccharinum*, in leaf, leaf shapes separate species. Out of leaf, *A rubrum* doesn't have "droop & swoop" branch tips like *A saccharinum*, & the old bark not as shaggy or silvery as *A saccharinum*.

RED MAPLE is a "supergeneralist", tolerant of sun or shade, high or low nutrients, dry or moist, late succession or early succession. It is the most successful & abundant tree in the Eastern Deciduous Forest, & "it will probably continue to increase in dominance in the overstory during the next century, causing widespread replacement of the historically dominant trees of the forests of the eastern United States" (Abrams 1998). As *A rubrum* is thin-barked & susceptible to fire, suggesting fire suppression may be a factor in this increase. Subject to manganese chlorosis on alkaline soils.

This species is a poor street tree. It grows too large, has weak, brittle wood that breaks relatively easily in storms, subject to drought or damage from dry planting sites, has thin bark that is easily damaged by lawnmowers or weed eaters & subject to some fungus & insects. It is also subject to chlorosis when grown in alkaline soils. Because the species is so geographically widespread & genetically diverse, careful attention to genetic origin is needed to insure adequate cold hardiness & the desired red fall foliage.

RED MAPLE is polygamo-dioecious. The male & female flowers may be on separate trees, they may be on the same tree but on separate branches, or the flowers may be functionally bisexual.

Associates: RED MAPLE is referred to as wind pollinated, but many insects, including bees visit the flowers; it may be an important early pollen source. Seeds provide food for squirrels, chipmunks, & some birds. Provides browse (seeds, buds, & flowers are eaten, & nesting habitat. This species is not preferred as browse by deer, & may increase where deer are abundant. Deer, moose, & elk browse red maple. Squirrels eat seeds, flowers, bark, & twigs. Rabbits relish the stump sprouts in fall & winter. Evening Grosbeaks eat fruit, flowers, & buds. May provide habitat for cavity nesters. Subject to tar spot, verticillium wilt, & leaf hoppers.

ethnobotany: Sap is used for maple syrup, but once the buds break, the sap contains a bad tasting chemical. Cambium used as medicinal plant by Ojibwa & Pottawatomie (sm32, 33). Bark contains tannin & was used as an analgesic, eyewash, & a remedy for hives & muscle aches. Wood not strong, close-grained, white to light brown, very heavy, but softer & lighter than SUGAR MAPLE. Wood is used for furniture, flooring, paneling, turnery, gunstocks, woodenware, & wood pulp. The wood does not machine as well as SUGAR MAPLE. (Uphof 1968, Walters & Yawney 1990).

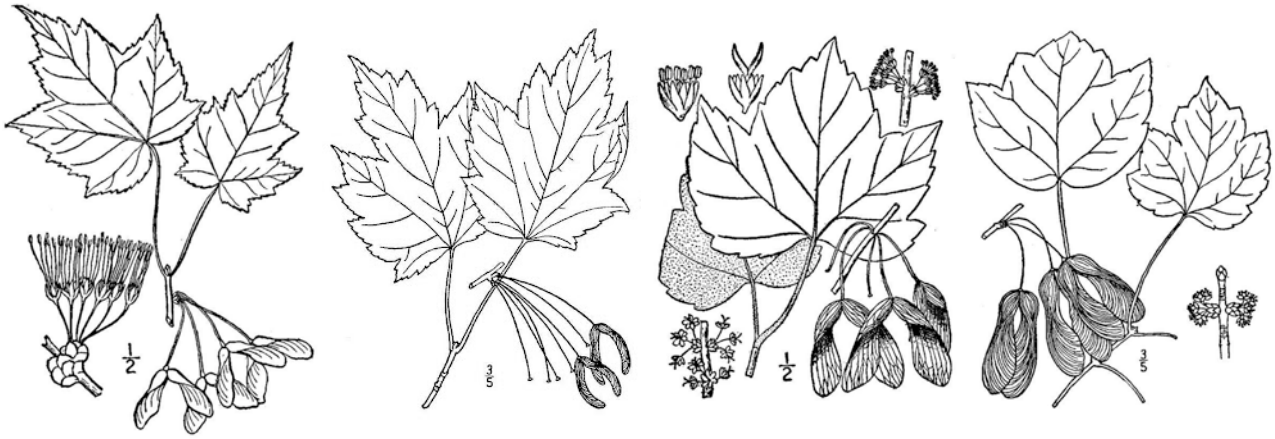
VHFS: Synonyms for variety *rubrum*: *Acer rubrum* L f *tomentosum* (Desf) Dans, *A rubrum* L var *tomentosum* Tausch, *A stenocarpum* Britton, *Rufacer rubrum* (L) Small

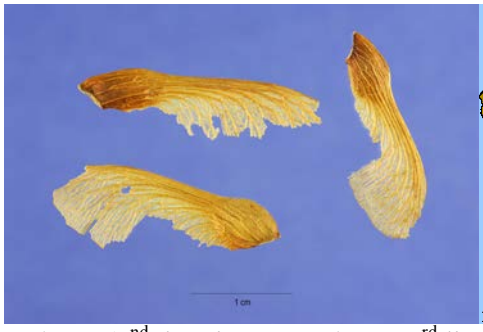
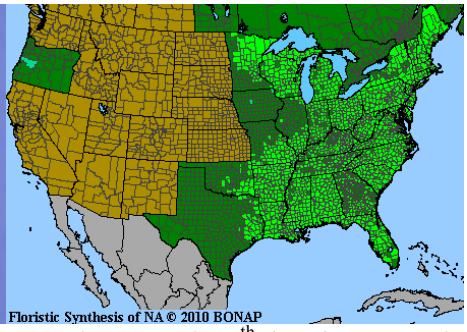
Var *drummondii* (Hook & Arn ex Nutt) Sarg, Var *trilobum* Torr & Gray ex K Koch. Red maple forms natural hybrids with silver maple (*A saccharinum*): *Acer* X *freemanii* E Murray.

Numerous horticultural cultivars & varieties selected for shape & color are available; one for its pleasant rounded habit as a young tree. Lollipop trees anyone?

M Abrams, 1998. *The red maple paradox. What explains the widespread expansion of red maple in eastern forests?* Bioscience (May), 355-364.

RS Walters & HW Yawney, 1990, *Acer rubrum* L; Red Maple; *Aceraceae* -- Maple family, in RM Burns & BH Honkala, Technical Coordinators, Timber Management Research, Agriculture Handbook 654 (Supersedes Agriculture Handbook 271, Silvics of Forest Trees of the United States, 1965) Forest Service, United States Department of Agriculture, Washington, DC, December 1990



Acer rubrum (2nd drawing var *rubrum,* 3rd line var *drummondii,* 4th drawing var *trilobum*)
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. Not copyrighted image. Map courtesy of BONAP.

Acer saccharinum Linnaeus SILVER MAPLE, aka RIVER MAPLE, WHITE MAPLE, *SILBER-AHORN,* SOFT MAPLE, (*saccharinum, saccharini* n., Latin noun, saccharin, implying sugary or resembling sugar, possibly from Medieval Latin, or from Greek σάκχαρον, σάκχαρ(ι), *sakkharon, sakkhar*(*i*), sugar, & *-inus -a -um, -īnus,* Latin adjectival suffix indicating possession or resemblance, used with a noun base. It is close to Greek -ινος, *-inos,* Latinized as *-inus*, indication of material or color, hence possession or resemblance. In the genus *Acer*, *saccharum* refers to sugar, while *saccharinum* refers to sugary, sugar-like. The sap of *A saccharinum* SILVER MAPLE is a less concentrated source of Maple Sugar than that of *A saccharum* SUGAR MAPLE.)

Habitat: Moist or wet soil, especially along riverbanks & in bottomlands, along streams & near ponds. distribution/range: In all Illinois cos. Eastern United States & central plains, but not in the southeastern states; also adjacent parts of Canada. In some areas, this species may be more common as a street tree or as an escape from cultivation than as a native tree.

Culture: propagation: Seeds are reported to germinate at 70ºF in a few days & rapidly lose viability with dry storage. 1,776 (jfn04); 6,400 (aes10) seeds per pound.

asexual propagation: Selections are grown from cuttings.

cultivation: Easily grown, transplanted & established. Adaptable to most soils, a good selection for poor soils, optimum pH 6.5. Hardy to zone 3. Tolerant of a wide range of soils, but not high pH, tolerant of drought, seasonal flooding, & urban conditions.

Description: Large native river bottom tree to around 70', but can reach well beyond 100', upright spreading branches form an oval or rounded crown that seems to have sprays of foliage jutting out, branches arch over then turn up at the tips, fast growing tree, vigorous, medium texture. Bark of trunk & branches silvery-gray, on trunk splits & flakes revealing orangish inner bark, bark is attractive & ornamental. Leaves opposite, 5-lobed, fairly deeply incised, bright green above, silvery below, 3" to 5" long, long petioles. Fall color typically yellow, greenish yellow, or green, some trees with reddish tints. Flowers monoecious with male & female flowers on separate branches; some flowers may be perfect, dull reddish orange in early spring; small, somewhat showy, but not as showy as *Acer rubrum* or *Acer platanoides*. Fruit are *samarae*, 1.3" to 2.3" long, ripening June, one of the larger-fruited maples. key features: " Leaves are usually cleft more than halfway to bases; silvery white below, & sharply toothed; staminate flowers in capitate clusters." (Ilpin) Bruised stems have a strong odor, flower buds in clusters look like Christmas ornaments, buds similar to *Acer rubrum*, but slightly larger, deeply cut foliage, silvery bark with orangish furrows, "droop & swoop" branch tips (uconn).

Comments: status: phenology: Blooms C3. Shade tree, used for temporary tree where fast growth is needed, for difficult sites, parks, areas that receive seasonal flooding. Attractive in the breeze with the fluttering of the silvery lower leaf surfaces.

"Common in low lands, the largest in our area being in Sugar River bottom west of Shirland." (ewf55)

Associates: Larval host *Dryocampa rubicunda* ROSY MAPLE MOTH. An excellent den tree for squirrels & woodpeckers. Downfalls include the rapid growth creates weak wood which breaks easily in storms or under ice load, shallow rooted & causes sidewalk or driveway buckling, roots can clog drain pipes, produces many weedy seedlings, verticillium wilt, anthracnose, leaf spot, tar spot, several insects, manganese chlorosis on high pH soils, great genetic variation exists but

VHFS: [*Acer dasycarpum* Ehrh, *A eriocarpum* Michx, *A saccharinum* L var *laciniatum* Pax, *A saccharinum* L var *wieri* Rehder, *Argentacer saccharinum* (L) Small]

Hybrids with *A rubrum* (*Acer X freemanii* E Murray) are known from Chicago (sw94).

Several selections have been made for branch structure, leaf dissection, cold hardiness, silhouette, & leaf color.

Acer saccharinum

Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. Not copyrighted image. Leaf photo W. D. Brush, National Agricultural Library. Originally from US Forest Service. United States, DC, Washington. USDA-NRCS PLANTS Database. Trunk photo Herman, D.E., et al. 1996. North Dakota tree handbook. USDA NRCS ND State Soil Conservation Committee; NDSU Extension & Western Area Power Administration, Bismarck. - Non-Copyrighted Image

Acer saccharum Marshall SUGAR MAPLE, aka HARD MAPLE, HEAD MAPLE, ROCK MAPLE, SUGAR TREE, *A'nina'tig* (Ojibwa) (*saccharum, sacchari* n. Latin noun, sugar, possibly Medieval Latin, or from Greek σάκχαρον, σάκχαρ(ι), *sakkharon, sakkhar(i),* sugar. In the genus *Acer*, *saccharum* refers to sugar, while *saccharinum* refers to sugary, sugar like. *A saccharinum* is a less concentrated source of MAPLE SUGAR than *A saccharum.* Maple syrup & sugar are made from the sap of this tree)

Habitat: Moist woods, calcareous soils. distribution/range:

Culture: Seed ripens in May, or seeds mature 3-4 months after flowering, & begin to fall about two weeks later. Germination occurs the next spring at optimal temperature of 1ºC. Seeds require cold moist stratification at ≈ 34ºF. Seeds germinate 75% at 70ºF in 3-7 days. Seeds stored 6 months at 70º are dead. Growth rate slow. Seedling vigor high. Vegetative spread rate none. Spreads moderately from seed. 1,440; 6,000 (ecs); 6,080 (usda); 9,008 (jfn04) seeds per pound.

Stump & root sprouting are moderately common.

cultivation: Tree does best on rich upland soils, will not tolerate wet feet. Tolerates shade but not pollution. Tolerant of coarse & medium textured soils. Anaerobic tolerance none. CaCO3 tolerance medium. Drought tolerance medium. Fertility requirement medium. Salinity tolerance none. Shade tolerant. pH 7-7.9.

Description: Dense spreading crown, 75-120 feet tall, oval form in age, minimum root depth 40", bark light gray to gray-brown, rough, deeply furrowed, & darkens with age. Yellow-orange to yellow red fall color (RRN 1997). Red & orange fall colors are prominent in the northeast with yellows more common to the west.

Comments: status: phenology: Blooms April to June. C3. An important timber tree, it may be long-lived, up to 500 years. Many older specimens are not clearly distinct from *A nigrum,* which is considered by some to be a variety of this species. Seed source eastern Iowa.

SUGAR MAPLE is not a good street tree. It is susceptible to soil compaction, high heat, air pollution, road salt, stem & root injury, & verticillium wilt when grown in heavy, poorly drained soils

Even light ground fires damage the thin bark of SUGAR MAPLE. Fire hazard is greatest in October after leaf fall. Fire suppression in Great Lakes & eastern woodlands is one cause of an increase in SUGAR MAPLE dominance of many forests. Selective harvesting of oaks, hickories, & walnuts may lead to a proportional increase of the species in some woodlands

bottom at Trask Bridge, one 3 miles north of this bridge, & one across the highway from Laona Heights Forest Preserve. There are isolated trees in other woods over the county but the only strictly maple grove is a small one on the Freelund farm west of Roscoe. Hard maple was a favorite for planting on the upland prairies in the central part of the county. These large old trees show an ineffectual tendency to reproduce." (ewf55)
Associates: SUGAR MAPLE is referred to as wind pollinated, but many insects, including bees visit the flowers; it may be an important early pollen source. White-tailed deer, moose, & snowshoe hare browse the twigs. Red squirrel, Gray squirrel, & flying squirrel eat the seeds buds, twigs, & leaves. (A moose & squirrel tree.) Porcupines eat the bark & may girdle upper stems. Songbirds, woodpeckers, & cavity nesters nest in this species. Excellent den tree. Species is known to chemically inhibit yellow birch & white spruce (Chick & Kielbaso 1998).
VHFS: Variety *schneckii* Rehder & var *rugelii* (Pax) Palmer & Steyerm are known from Chicago region (sw94).
Variety *saccharum*: [*Acer nigrum* F Michx var *glaucum* (F Schmidt) Fosberg, *A nigrum* F Michx var *saccharophorum* (K Koch) RT Clausen, *A saccharinum* Wangenh var *glaucum* F Schmidt, *A saccharum* Marshall f. *glaucum* (F Schmidt) Pax, *A saccharum* Marshall subsp. *saccharum, A saccharum* Marshall var *glaucum* (F Schmidt) Sarg, *A saccharophorum* K. Koch, *Saccharodendron saccharum* (Marshall) Moldenke]
Variety *schneckii* Rehder: [*Acer saccharum* Marshall f *schneckii* (Rehder) Deam, *A saccharum* Marshall subsp *ozarkense* E. Murray, *A saccharum* Marshall subsp *schneckii* (Rehder) Desmarais, *A saccharum* Marshall var *rugellii* (Pax) Rehder.


Acer saccharum
Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

Acer spicatum Lamark MOUNTAIN MAPLE, aka MOUNTAIN MAPLE BUSH, (*spicatus -a -um* spiked, with flowers in a spike, spicate, bearing a spike, from Latin *spicatus -a -um*, past participle, *spico*, I grow ears, spikes, like corn or wheat)
Habitat: distribution/range:
Description: "Small understory tree w/yellow green upright flowers. Often deep red samaras in mid summer. Fall color yellow to pink to burnt orange" (rrn97).
Associates: ethnobotany: Cambium used as medicinal plant by Ojibwa & Pottawatomie (sm32, 33).



ANACARDIACEAE Lindley 1830 ☠ **CASHEW FAMILY, SUMACHS, PISTACHIO, MANGO** A family of about 70-81 genera & 800-875 (578) species of trees, shrubs, lianas, & rarely herbs, tropical, subtropical, & temperate regions. Locally they are woody plants with alternate pinnately compound leaves often in 3's, with resin ducts (sometimes a skin irritant), lowers 5-merous, the fruits are berries or drupes, usually the latter & 1-seeded. Many taxa have resinous, gummy, caustic or milky sap that is poisonous, but used in indelible inks & varnish. Some authors noted some plants' exhalations were poisonous. The unprocessed CASHEW NUT has a coat that is filled with caustic oil that blisters skin & kills warts. Uncooked cashews are toxic. Even "raw" cashews have been steamed or boiled to break down the toxins.

Cotinus P Miller 1754 **SMOKETREE** *Anacardiaceae Cotinus* New Latin, from Latin *cotinus*, *cotini*, n, a kind of shrub furnishing a purple dye; the sumac-tree, *Rhus cotinus. Cotinus* is a genus 4-8 species of southeast & southcentral North America & temperate Eurasia. The Eurasian *C coggygria* is planted as an ornamental & has naturalized in the northeast USA.

Cotinus obovata Rafinesque AMERICAN SMOKE TREE, aka CHITTAMWOOD, TEXAS SMOKE TREE,

In the se USA, "A small tree of limestone woodlands & glade margins, occasionally planted as an ornamental tree" (w12). distribution/range: Native se & sw of Illinois.

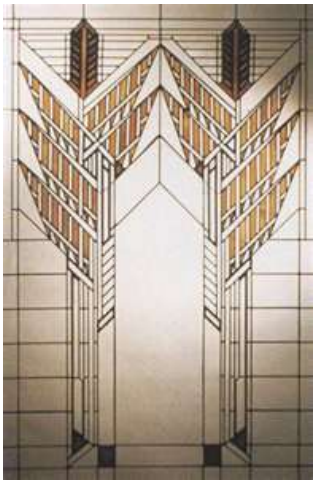
The wood of *Cotinus obovata* fluoresces deep yellow under ultraviolet lights.

[*Cotinus obovatus* Raf, orthographic variant, *C americanus* Nutt]

Cotinus obovata

Photo by National Agricultural Library. Originally from US Forest Service. United States, MO.

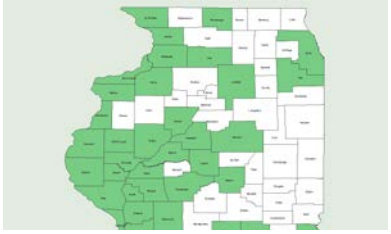
RHUS Linnaeus **SUMAC** *Anacardiaceae Rhus* (rhus) from Latin name *rhūs*, for sumac *R. coriaria*, from Greek ῥοῦς, ῥούδι, ῥόον, *rhous, (rhoũs), roúdi, rhóon*; alternately Celtic *rhudd,* red. A genus of about 35 (25) species of deciduous shrubs, trees, & lianas, temperate & subtropical, in Eurasia, Hawaii, North America, & northern Central America. Seed head dense, dry red "berries", at the end of stems or lateral on last years stem. Fruit is a small, 1-seeded, subglobous, dry drupe. Upland gamebirds, songbirds, & small mammals eat fruit. Terrestrial furbearers eat fruit & bark. Deer eat twigs, fruit, & foliage. Can be valuable upland game bird food & cover. Some *Rhus* have been shown to chemically inhibit DOUGLAS FIR (Chick & Kielbaso 1998). *Rhus* is the larval host for the SPRING AZURE & SUMMER AZURE BUTTERFLIES, & for *Calycopis cecrops* RED-BANDED HAIRSTREAK BUTTERFLY. *Rhus* is a nectar source for *Satyrium edwardsii* EDWARDS' HAIRSTREAK BUTTERFLY, *S calanus* BANDED HAIRSTREAK BUTTERFLY, *S caryaevorum*, HICKORY HAIRSTREAK BUTTERFLY, & *S liparops* STRIPED HAIRSTREAK BUTTERFLY. The wood of several sumac species fluoresces under ultraviolet light. Dude, you can do some far-out, glow-in-the-light inlays & marquetry. The fall-colored sumac leaves were the inspiration for Frank Lloyd Wright's sumac stained glass windows.



Rhus arenaria (Greene) Jones "Found only near Kishwaukee River below Cherry Valley where it is locally plentiful, preferring dry hillsides, but it is also found near the river in moist places. It is not found in Sugar River sand area. (*R aromatica* Ait. var *arenaria* (Greene) Fern)" (ewf55)

Rhus aromatica Aiton AROMATIC SUMAC, aka FRAGRANT SUMAC, LEMON SUMAC, POLECAT BUSH, SQUAW-BUSH, SWEET SUMAC, upl
Habitat: Sand prairies, dry savanna, dry sites. Open woods, bluffs; woods, bluffs, dunes, & hill prairies.
distribution/range:
Culture: Hot water treatment. 60 days cold moist stratification (pm09). Macerate-dormant seed moist cold stratify (30-90 days) acid scarification (30 min) is reported to be successful. 20,300 seeds per pound.
cultivation: Transplants easily, BR or B&B. Hardy to zone 3.
Description: Sprawling native shrub or small tree, 2-6'+, suckers freely; yellow flowers, polygamous; trifoliate, glossy foliage; red fall color; fruit is a ± fleshy drupe, bright red, 0.25" diameter, covered with hairs;
Comments: status: Special concern in Wisconsin. phenology: Blooms 4,5,6. Aggressive.
"Roughs" along "the margins of 'sloughs,' and along the courses of small streams" As *R aromaticum* Ait. (Short 1845)
Associates: Pollinated by bees & other *Hymenoptera.* Attracts upland gamebirds, songbirds, game mammals, & small mammals. Winter wildlife value high.
ethnobotany: Leaves smoked by Menominee (Hoffman 1986).
VHFS: Synonyms for variety *aromatica*: [*Rhus aromatica* Aiton var *illinoensis* (Greene) Rehder, *R canadensis* Marshall var *illinoensis* (Greene) Fern, *Schmaltzia crenata* (Mill) Greene, *S illinoensis* Greene, *Toxicodendron crenatum* Mill] Synonyms for variety *serotina* (Greene) Rehder: [*Rhus aromatica* Aiton subsp *serotina* (Greene) RE Brooks. *R trilobata* Nutt, sensu Fassett (1940), *R. trilobata* Nutt var *serotina* (Greene) FA Barkley]
Cv "Grow-low" with lower denser growth, is an excellent groundcover for hot dry soils, red fall color with red fruit, hardy to zone 3.

Rhus Copallinum Linnaeus SHINING SUMAC, aka DWARF SUMAC, FLAME-LEAF SUMAC, MOUNTAIN SUMAC, WINGED SUMAC, WING-RIBBED SUMAC, (*Copallinum* gummy, resinous, New Latin? from Sp *copal* (F *copal, copale*), Mexican *copalli* incense (Molina 1571), a fragrant translucent white resin, which distils from a tree, thence called *copalquahuitl,* & by extension any similar resin, the reference uncertain by some authors; probably in reference to the similar dried sap of this species. Many taxa of *Anacardiaceae* have a resinous, gummy, caustic or milky sap. "The Linnaean epithet "*copallinum*" (traditionally capitalized as "*Copallinum*") is grammatically a noun in apposition rather than an adjective, & therefore does not change grammatical gender" (w12). Shining refers to the luster of the upper surfaces of the leaves in the September sun. Winged in the common name refers to the winged upper rachis of the odd-pinnate leaves.



Habitat: Dry hills, edges of fields, woodland edges, abandoned old fields; dry hills & fields. distribution/range:

diameter covered with short hairs in large upright clusters, persistent thru winter; leaves glossy green in summer, exquisite red fall color. Plant some slightly elevated where they will be viewed from the north, to take advantage of the low angle, autumn sun refracting off the glossy, red leaves.

"Roughs" along "the margins of 'sloughs,' and along the courses of small streams." As *Rhus copalinum* L. (Short 1845).

Comments: status: phenology: Blooms July.

The wood fluoresces bright yellow under ultraviolet lights.

Associates: Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera, & Diptera*. "Berries" are a more preferred food than *R glabra*, eaten when available. The fruits are said to be good quail food.

VHFS: [*Rhus copallina* L var *copallina*, *R copallina* L var *latifolia* Engl]

Rhus copallinum

Rhus glabra Linnaeus SMOOTH SUMAC, *Maki'bug* (Ojibwa) (GLAB-ra glabrous, smooth, lacking hairs on the leaves & stems) upl

Habitat: Woodland borders, fields, woods, roadsides, common dry soil, old fields, roadsides, & borders of woods. Upland soil, mesic or dry, poor dry soil. Old fields, roadsides, margins of woods, & fencerows. Woods, fields, roadsides, hill prairies, & sandy soils. distribution/range:

Cultivation; Float seed, scarify by boil seed & steep, or acid scarification (1-6 hr) also reported. 49,000 (gran); 68,000 seeds per pound.

cultivation: Transplants easily, BR or B&B. Hardy to zone 3. Coarse to moderately fine soils. Neutral soils, some base & acid tolerance. Optimum pH 5.4.

Description: Deciduous, colonial native shrub, thicket-forming, rhizomatous, suckering to form open clones; 6-8' (9-15', 4-7', 10'+) or small tree up to 20', inconspicuous white (?) flowers in summer followed dry, dark red berries, flowers polygamous, long compound leaves, good red to orange-purple fall color. Showy fruits persist thru winter. Smooth stems. Suckers freely. Yellow flowers. 3.0-10' shrub Fruits are fleshy drupes, bright red, 0.25" diameter covered with short hairs in large upright clusters.

Comments: status: Potentially invasive. phenology: Blooms June-July.

The wood fluoresces bright yellow under ultraviolet lights.

"Roughs" along "the margins of 'sloughs,' and along the courses of small streams." As *Rhus glabrum* L. (Short 1845).

"Grows in a great variety of situations. In the open it forms thickets; in woods it may attain small tree size & shape." (ewf55)

Associates: Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera, & Diptera*. Valuable cover for wildlife. Used by cottontail rabbit & deer. Attracts upland game birds, songbirds, small mammals, & game mammals. High wildlife value as winter emergency food. Berries important food for birds.

ethnobotany: Berries available in summer & autumn. Used by Ojibwa for beverage (dried for winter) (sm32). Used as medicinal plant by Ojibwa (Gilmore 1933). Ojibwa medicine for dysentery. Dried ripe fruits are astringent & refrigerant (den28). Used for dye by Ojibwa (sm32). Leaves smoked by the Menominee & Ojibwa (& Pottawatomie?) (Hoffman 1896, Gilmore 1933).

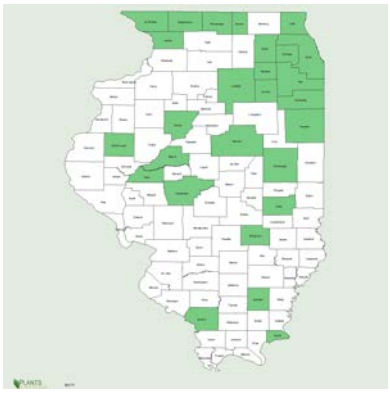

Rhus glabra

Rhus X pulvinata Greene (pro sp.) HYBRID SUMAC, aka NORTHERN SUMAC, PULVINATE SUMAC,
Rhus glabra L X *R. hirta* (L) Sudw)
[*Rhus glabra* L var *borealis* Britton, *R pulvinata* Greene, *R* X *borealis* (Britton) Gleason (emended)]

Rhus toxicodendron Linnaeus POISON-IVY, aka POISON-OAK, See *Toxicodendron*

Rhus trilobata OAKBRUSH SUMAC Blooms summer, yellow flowers, red berries, 2-6', native shrub west of Illinois. Coarse to moderately fine soils. Neutral to basic soils. 20,300 (gran) seeds per pound.

Rhus typhina Linnaeus [also seen as (Linnaeus) Sudworth] STAGHORN SUMAC, aka CUTLEAF SUMAC, STAG'S HORN SUMAC, VELVET SUMAC, (*typhinus -a -um* (tee-FEEN-us) in some taxa, like *Typha,* from the resemblance of the pistillate spikelets to cattails; in one source more applicable to *Rhus*, antler-shaped, but the root is more related to the word tuber.) The common names VELVET & STAGHORN are from the "velvet" fuzz on the new growth resembling the developing antlers of buck or stag deer in velvet stage.



Habitat: Dry or gravelly soil, especially on ridges, & woods. Sandy or gravelly ridges & slopes & along lakes & bogs. Woods, thickets. Good for difficult sites; woods, gravel ridges. distribution/range: Occasional in north ½ of Illinois, rare & adventive to south.
cultivation: 25,800 (aes10) seeds per acre. Transplants easily, BR or B&B. Optimum pH 5.3. Hardy to zone 4. Younger shoots have thin bark & are easily severely damaged by weed-eaters.
Description: Taller colonial, native shrub, 10'+, 10-20' or small tree up to 40', suckering freely, with velvet fuzz on new growth. Flowers polygamous, often dioecious; with showy fruit clusters in fall persistent thru winter, fruits are ± fleshy drupes, bright red, 0.25" dia. covered with short hairs in large upright clusters; leaves orange to red fall (yellow scarlet, red) color.

The sapwood fluoresces pale lavender blue under ultraviolet lights. Each growth ring in the heartwood has a yellow, yellow-green, lavender blue sequence. (Hoadley 1986)

"We have seen this a number of times but always where it seemed likely that it had been planted or escaped. Apparently not native in the county." (ewf55)
Comments: status: phenology: New plantings can be trained as a small tree. Some strains may be invasively colonial.
Associates: Pollinated by bees & other *Hymenoptera*. Larval host for *Calycopis cecrops* RED-BANDED HAIRSTREAK BUTTERFLY. Nectar source for *Satyrium edwardsii* EDWARDS' HAIRSTREAK BUTTERFLY, *Satyrium calanus* BANDED HAIRSTREAK BUTTERFLY, *Satyrium caryaevorum* HICKORY HAIRSTREAK BUTTERFLY, & *Satyrium liparops* STRIPED HAIRSTREAK BUTTERFLY. Attracts upland gamebirds, songbirds, game mammals, small mammals, high winter wildlife value; Used by cottontail rabbit & deer. Subject to fungus cankers, & twig dieback, borers.

ethnobotany: Berries available midsummer to early winter. Used by Ojibwa, Menominee, & Pottawatomie for beverage. Dried for winter by Menominee. Berries used for food by Pottawatomie (sm33). Root bark, cambium, & berries used as medicinal plant by Ojibwa, Menominee & Pottawatomie (sm23, 32, 33). Ojibwa medicine for pain in

Rhus typhina

TOXICODENDRON POISON-IVY, POISON-OAK, POISON SUMAC ☠ *Anacardiaceae Toxicodendron* poison tree, from Greek τοξικον-δενδρον, *toxikon-dendron*, the meaning poison shortened from τοξικὸν φάρμακον, *toxikon pharmakon*, poison, & δένδρον, *dendron,* tree, as in dendrology, Rhododendron, &c. A genus of about 10-15 species of trees, shrubs, & woody vines of primarily temperate North America, northern South America, Indonesia, & east Asia. Our species are native deciduous woody perennial vines & shrubs with flower heads loose, in axils of leaves, followed by white or yellowish berries.

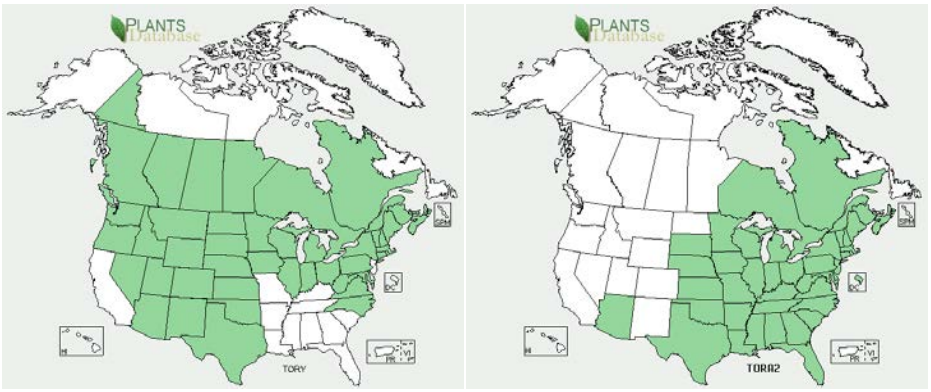
Chinese, Japanese, & Korean lacquerware was coated the processed sap of the CHINESE LACQUER TREE, *T vernicifluum*. The sap contains urushiol, the active ingredient in POISON IVY, & is toxic while liquid. The dried sap polymerizes, but can still cause rashes.

All plant parts are poisonous in all seasons if plant sap is contacted. Severe skin irritation upon contact. Symptoms include severe skin redness, itching, swelling, and blisters following direct or indirect contact. Toxic Principle: Urushiol. (lbj)

Ilpin lists *Toxicodendron toxicarium* (Salisb.) Gillis POISON OAK, from Pope Co, Il.

LEAFLETS THREE, LET IT BE!

The following 2 species have only recently been differentiated. Older literature may refer to either or both. In the following, most statements will refer to both taxa.



Western & Eastern Poison Ivy, respectively

Toxicodendron radicans (Linnaeus) Kuntze POISON IVY, aka COMMON POISON IVY, EASTERN POISON IVY, (*radicans* (RAH-di-kanz) with stems that usually form roots, rooting particularly of stems & leaves, from Latin *radix, radicis*, n, a root, a base, & *-icans* Latin adjectival suffix indicating the process of becoming or resemblance, sometimes so close to be almost identical; participle base from verb base from noun base.)

Seeds are dormant and may form a persistent seed bank.

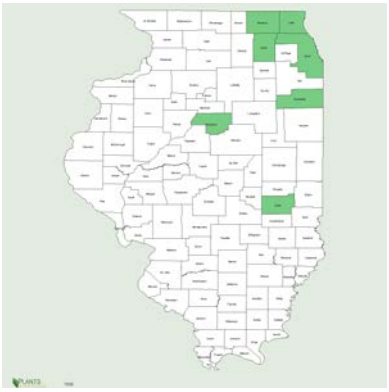
Part shade to shade, often in full sun

Associates: ☠ Attracts butterflies. Pollinated by pollinated by ants, bees, beetles, butterflies, flies, true bugs, & wasps. Fruits are eaten & seeds dispersed by birds & small mammals (endozoochory). Highly deer resistant.
VHFS: Weakley (2012) lists 3 varieties: *Toxicodendron radicans* (Linnaeus) Kuntze *var negundo* (Greene) Reveal, MIDWESTERN POISON IVY: *T radicans* (Linnaeus) Kuntze *var pubens* (Engelmann ex S Watson) Reveal: *T radicans* (Linnaeus) Kuntze *var radicans*, EASTERN POISON IVY.

RJ Innes, 2012. *Toxicodendron radicans, T. rydbergii*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2014, May 17].

Toxicodendron rydbergii (Small ex Rydb.) Greene RYDBERG'S POISON-IVY, aka WESTERN POISON-IVY, (In honor of Per Axel *Rydberg* (1860-1931), a member of the New York Botanical Gardens in the late 19th & early 20th centuries, who wrote the first book on the flora of the Rockies from Canada to Mexico, & several other floras)
Habitat: Full to partial sun; woodland edges & openings, & prairies. distribution/range:
Culture: Rude & uncultured!
Description: Native, erect, deciduous perennial ground cover, woody vine or shrub, 1'-3' tall with 1 to a few branches; stems woody; from colony-forming rhizomes; bark; leaves; inflorescence a 4"-16" elongated, branched cluster (cyme) with usually less than 25 stalked flowers; flowers white, 5-merous; fruits smooth white to yellow berry; N. key features: Shrub from colony forming rhizomes, leaf shiny, smooth, trifoliate; fruit smooth, white to yellow berry;
Comments: status: Native, potentially invasive. phenology: Blooms June - August "to eradicate, wear gloves & pull in the fall or winter or use a brush herbicide; do not burn." "Common poison ivy having many vegetative variations." (ewf55) Dioecious.
Associates: ☠ Pollinated by ants, bees, beetles, butterflies, flies, true bugs, & wasps.
VHFS: [*Rhus radicans* L var *rydbergii* (Small ex Rydb) Rehder, *R radicans* L var *vulgaris* (Michx) DC, *R rydbergii* Small ex Rydb (pro parte), *R toxicodendron* L var *vulgaris* Michx, *Toxicodendron desertorum* Lunell, *T radicans* (L) Kuntze var *rydbergii* (Small ex Rydb) Erskin]

Toxicodendron vernix (Linnaeus) Kuntze POISON SUMAC, aka DOG WOOD, SWAMP SUMAC, THUNDERWOOD, (*vernix* New Latin *vernix*, varnish, medieval Latin *vernicium* & *vernix* (*bernix*), medieval Greek βερνίκη, *bernike,* modern Greek βερνίκι, *berniki*.)
Observed in Spring Bay Bog.
Native perennial shrub. ☠ distribution/range: Occasional to rare, Coles, Cook, Kane, Kankakee, Lake, McHenry, & Woodford cos in Illinois.
Polygamodioecious. key features: "Drupes grayish-white; bark smooth, gray, glaucous; glabrous branches" (Ilpin). Blooms 5-7. C3.
"The whole plant is very poisonous to the taste & touch, & even taints the air to some distance around with its pernicious effluvium" (Wood 1873).
VHFS: [*Rhus vernix* L]



AQUIFOLIACEAE Bartling 1830 **HOLLY FAMILY** A monogeneric (if *Nemopanthus* is included in *Ilex*) family of about 500 species, nearly cosmopolitan.

ILEX Linnaeus 1753 **HOLLY, WINTERBERRY, GALLBERRY, INKBERRY** *Aquifoliaceae* (*Ilex* (EE-leks) From *Ilex* the Latin name for Holly Oak *Quercus*.) A genus of about 500 species of evergreen trees & shrubs, with some deciduous shrubs, cosmopolitan, widespread in temperate & tropical Asia & America. Evergreen or deciduous trees & shrubs with leaves simple, alternate, often spiny or toothed margins, with axial flowers, 4-8 parted white, sepals 4, petals 4, greenish, or yellowish, berries red. The genus *Nemopanthus* is considered best subsumed in *Ilex* by some authorities.

Ilex prinoides I. decidua Roughs" along "the margins of 'sloughs,' and along the courses of small streams." *Ilex decidua* as *I. prinoides* Ait. (Short 1845).

Ilex verticillata (Linnaeus) Gray COMMON WINTERBERRY, aka WINTERBERRY, BLACK ALDER??? (*verticillatus -a -um* verticillate, whorled, from Latin *verticillus*, adjective, the whirl of a spindle, & *–atus*, adjectival suffix for nouns, possessive of or likeness of something with, shaped, made.)
Habitat: Wet woods, swamps, edges of streams, wooded slopes, damp thickets, pond margins; swamps, along streams,

seed sown at 70º F germinated during second warm moist stratification cycle. Fresh seed collected in December sown at 70º F had germination in third warm moist stratification cycle. Fresh & dry stored seed failed to germinate when sown at 40ºF. (nd91) 150,000 (jfn04) seeds per pound.

cultivation: Softwood cuttings.

cultivation: Transplant B&B or container grown material. Species needs adequate soil moisture, does not like highly alkaline soils. Hardy to zone 3.

Description: Erect, native perennial shrub, 6'-16' tall; bark; leaves thin, deciduous, oblong, with sharp teeth; inflorescence: of several flowers in a cluster from the leaf axils; flowers white, 6-8-merous, petal edges entire, attached at the base; fruits red berry with a thick nutlet; N. key features: Flower petals attached at the base, leaves with sharp teeth?

Comments: status: phenology: Blooms May - June. Native deciduous holly of sands & swampy soils. Small white flowers in summer, followed by 0.25" fleshy, bright red fruits on female plants in fall. Flowers dioecious, need male plants for fruit production; showy red berries persist into winter if not eaten by birds. Subject to chlorosis in high pH soils.

The wood of *I verticillata* fluoresces light blue under ultraviolet lights. Look at the colors, dude. (Hoadley 1986)

Roughs" along "the margins of 'sloughs,' and along the courses of small streams" *Ilex verticillata* as *Prinos verticillata* L. (Short 1845).

"Known only in Shirland Township & ½ mile west of Yale bridge in Laona Township. Trees growing in full sun have thicker leaves & are more fruitful than those that are shaded." (ewf55)

Associates: Waterfowl, upland gamebirds, songbirds, & deer eat fruits or seeds. Attracts upland gamebirds, songbirds. High wildlife value in winter. No serious problems.

ethnobotany: Used as medicinal plant by Ojibwa (sm32).

VHFS: [*Ilex bronxensis* Britt, *I fastigiata* Bicknell, *I verticillata* (L) Gray subsp *tenuifolia* (Torr) E Murray, *I verticillata* (L) Gray var *cyclophylla* BL Rob, *I verticillata* (L) Gray var *fastigiata* (Bicknell) Fern, *I verticillata* (L) Gray var *padifolia* (Willd) Torr & Gray ex S Watson, *I verticillata* (L) Gray var *tenuifolia* (Torr) S Watson, *I verticillata* (L) Gray var *verticillata*, *Prinos padifolius* Willd, *P verticillatus* L, *P verticillatus* L var *tenuifolius* Torr]

NEMOPANTHUS Rafinesque *Aquifoliaceae* Some authors include this in *Ilex*. "Debate about the distinctiveness of *Nemopanthus* from *Ilex* have now been unequivocally answered, with *Nemopanthus* to be included in *Ilex* (Powell et al 2000; Manen, Boulter, & Naciri-Graven 2002)" (w12).

Nemopanthus mucronata (Linnaeus) Trelease [new nomenclature *Ilex mucronata* (Linnaeus) M. Powell, V. Savolainen, & S Andrews] MOUNTAIN HOLLY, aka CATBERRY, NEMOPANTHUS, (*mucronatus -a -um* New Latin, mucronate, pointed, terminating an organ with a straight, stiff & sharp point, from Latin, point, edge & *-atus*, Latin suffix indicating possession, likeness, or 'provided with'.)

Habitat: Deep cedar & tamarack bogs, prefers wet acid soils, as opposed to moist upland soils. In the se USA, "bogs & moist high elevation bogs" (w12). distribution/range: Appalachians.

Culture: Softwood cuttings. Hardy to zone 2.

Description: Erect, perennial, 10' tall shrub, branched; bark; leaves blue-green, with short, sharp point, edges mostly entire, bases rounded, stalks often reddish; flowers yellowish, 7 or more-merous, petals separate, narrow; fruits red or yellow berry with a thick nutlet; N. key features: Petals separate; leaves with short, sharp point, entire. "It can be separated vegetatively from other hollies in the mountain regions of w VA (*I montana*, *I collina*, *I opaca*, & *I verticillata*) by its smaller, narrower, entire (or nearly so) leaves, 2-5 (-6) cm long, 1-2.5 cm wide" (w12).

Comments: status: Native. phenology: Blooms April (May) - June. Fine textured holly-like shrub, blue-green leaves, to 10'. Summer red with a tint of black. Very attractive.

Associates: ethnobotany: Showy, satin-red berries available in August to September. Used as medicinal beverage by Pottawatomie (sm33). Pottawatomie used the berry as food (sm33). Ojibwa used it for medicine (sm32).

VHFS: [*Ilex mucronata* (L) M Powell, V Savolainen & S Andrews, *Nemopanthus mucronatus* (L) Loes, *Vaccinium mucronatum* L]

ARALIACEAE A L de Jussieu 1789 GINSENG FAMILY See the misc. dicots.

BETULACEAE SF Gray 1821 **BIRCH FAMILY**

"Members of *Betulaceae* are economically important as timber trees, as the source of hazelnuts & filberts (*Corylus*), as ornamental trees & shrubs, & as aids in soil nitrification & stabilization (*Alnus*). Some are important as causes of pollen allergies in regions where they grow abundantly." (Furlow fna)

ALNUS P Miller 1754 **ALDER,** ***AULNE, AUNE*** *Betulaceae* Subfamily *Betuloidea* *Alnus* From the Latin name for Alder, *alnus* from Late Greek, Macedonian dialect, *aliza* white poplar; alternately Classical Latin from Celtic for growth along streams. *Alnus* is a genus 25 species of deciduous trees & shrubs of the north temperate zone & the Andes, with toothed leaves, a 4-parted calyx, & a woody, persistent catkins, & fruits are tiny samaras. *Alnus* have symbiotic, nitrogen-fixing, nodule-forming actinomycetes of the genus *Frankia.* *Frankia* may thrive adjacent to but not on roots of some *Betula* species. Nitrogen accumulation by some alders is comparable to leguminous agricultural crops. The nitrogen enhancing effects are local & restricted to plants in the immediate vicinity of the shrub. X = 7.

ALDERS have infructescences of 5-lobed, woody scales, while those of BIRCHES have deciduous, 3-lobed, thin scales. (Furlow in fna)

Seeds ripen in the fall. Collect female catkins or strobules as they darken & split. Some species will germinate when fresh seed is sown in a greenhouse. Dried seed needs 60-90 days of cold moist stratification. Fall sowing outdoors is easiest. Seedlings should be potted when 1st true leaf develops. (cu02)

Landscape and erosion control plants should be inoculated with *Frankia* bacteria. A few cups of soil from around established wild plants should be mixed with water into a slurry and applied around the plant. *Frankia* is sensitive to fertilizer salts, so do not heavily fertilize new plantings. (cu02)

Alnus glutinosa (L) Gaertner BLACK ALDER, aka EUROPEAN ALDER, (*glutinosus -a -um* glutinous, sticky, very sticky) Introduced, locally established; potentially invasive tree. distribution/range:
VHFS: [*Alnus alnus* (L) Britt, *A vulgaris* Hill, *Betula alnus* L var *glutinosa* L]

Alnus incana (L) Moench ssp **rugosa** (Du Roi) Clausen *IL SPECKLED ALDER, aka ALDER, GRAY ALDER, MOUNTAIN ALDER, SWAMP ALDER, *Wadub* (*incanus -a -um* hoary, hairy, gray; *rugosus -a -um* roo-GO-sus rugose, wrinkled, rough, from Latin *rugosus*, adj, full of wrinkles, folds, or creases, from *ruga*, wrinkle)
Habitat: Moist thickets, stream banks, & lowland marshes. distribution/range: Circumpolar with several subspecies.
Culture: Growth rate moderate. Seedling vigor low. Vegetative spread rate slow. Spreads slowly from seed. 1,084,250 (usda) seeds per pound.

cultivation: Tolerant of coarse, medium, & fine textured soils. Anaerobic tolerance high. CaCO3 tolerance medium. Drought tolerance low. Fertility requirement medium. Salinity tolerance none. Shade tolerance intermediate. pH 5.0-7.0.
Description: Native, flowers yellow; 24" minimum root depth.
Comments: status: Endangered in Illinois. phenology: Blooms
Associates: Provides cover for moose, deer, rabbits & other wildlife. Moose, muskrats, beavers, & rabbits browse the twigs & leaves. Redpolls, goldfinches, woodcock, & grouse eat the seeds, buds, & catkins. Be sure to inform those HOA about the potential moose situation.

ethnobotany: Bark & root used as medicinal plant by Ojibwa, Menominee, & Pottawatomie (sm23, 32, 33). Ojibwa used as medicine for diseases of women (den28). Bark alterative, astringent, & emetic. Also used for dye. Roots used for sewing birch bark canoes by Ojibwa (sm32).
VHFS: Var *americana* (Regel) Fern has glaucous or whitened lower leaf surfaces, & a more southern distribution.

Formerly [*Alnus glauca* Michx, *A incana* (L) Moench, *A incana* (L) Moench var *americana* Regel, *A incana* (L) Moench f *tomophylla* Fern, *A rugosa* (Du Roi) Spreng, *A rugosa* (Du Roi) Spreng var *americana* (Regel) Fern, *A rugosa* (Du Roi) Spreng var *tomophylla* (Fern) Fern, *Betula alnus* L var *rugosa* Du Roi]

Alnus rugosa (DuRoi) Sprengel SMOOTH ALDER, aka SPECKLED ALDER (*rugosus -a -um* roo-GO-sus rugose, wrinkled, rough; covered with wrinkles, or thrown into wrinkles, from Latin *rugosus*, adjective, full of wrinkles, folds, or creases, from *ruga*, wrinkle.)
Stream banks & wetlands. distribution/range: "There is an alder thicket in northern Shirland Township the next nearest being at Chemung near the Boone-McHenry line." (ewf55)

Alnus serrulata (Aiton) Willdenow SMOOTH ALDER, aka COMMON ALDER, HAZEL ALDER, TAG ALDER, (*serrulatus -a -um* teethed, with minute teeth, somewhat serrate, with small saw-like teeth, from Latin *serrula, serullae* f., a little saw, and *-atus*, Latin suffix indicating possession, likeness, or 'provided with'.)

Alnus viridis (Vill.) DC. subsp. **crispa** (Aiton) Turrill AMERICAN GREEN ALDER, aka GREEN ALDER, MOUNTAIN ALDER, (*viridis -is -e* Latin green, fresh, young, vigorous, *crispus -a -um* Latin curled)
distribution/range:
Native perennial shrub.
VHFS: [*Alnus alnobetula* (Ehrh) K Koch var *crispa* (Aiton) HJP Winkler, *A crispa* (Ait) Pursh, *A crispa* (Ait) Pursh var *elongata* Raup, *A crispa* (Ait) Pursh var *harricanensis* Lepage, *A crispa* (Ait) Pursh var *mollis* (Fern) Fern, *A crispa* (Ait) Pursh var *stragula* Fern, *A mitchelliana* MA Curtis ex Gray, *A mollis* Fern, *A viridis* (Vill) DC var *crispa* (Ait) House, *A viridis* (Vill) DC var *fernaldii* House, *A* X *hultenii* Murai, *Betula crispa* Ait, *Duschekia viridis* (Chaix) Opiz]

BETULA Linnaeus 1753 **BIRCH** *Betulaceae* Subfamily *Betuloidea Betula,* (BET-ew-la) the ancient Latin name of the tree, from *betula*, *betul-*, Greek for birch. A genus of 35-100 species of trees, shrubs, & subshrubs of subarctic & temperate regions of the Northern Hemisphere. Deciduous trees & shrubs, bark with prominent lenticles often peeling, infructescence a catkin (strobule) with deciduous scales, some species persistent into winter, fruits small samaras. BIRCHES are the larval hosts for COMPTON TORTOISESHELL, MORNING CLOAK, & TIGER SWALLOWTAIL. *Frankia* may thrive adjacent to but not on roots of some *Betula* species. X = 14.
add 3 sections here; wood uses, wintergreen oil.
Seeds of most species ripen late fall and often persist into winter. The strobules may be fragile & disintegrate as you pick them. Code B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF and H seeds require light to germinate. Cullina (2002) notes *Betula* is very light dependent, with seeds surface sown , covered with a light layer of coarse sand, & placed in a cold frame for natural winter stratification. Seedling produce cotyledons & 1-3+ true leaves 1st year. *B. nigra* ripens in spring and will germinate without cold moist stratification. Code A seeds will germinate within 4 weeks sown at 70ºF, & H seeds require light to germinate. (cu02)
Species are best from seed. For cultivars, semi-hardwood cuttings in early to mid summer. Prune soft tips, wound, & 2000 ppm IBA talc. (cu02)

Betula alleghaniensis Britton *IL YELLOW BIRCH, aka *MERISIER, BOULEAU JAUNE,* (*alleghaniensis -is -e* of or referring to the Allegheny Mountains) Section *Costatae.*
Habitat: Moist & cool soil of shaded bluffs, often with WHITE PINE & CANADA YEW. distribution/range: DuPage, Kane, Lake, Lee, Ogle, & Winnebago cos. In Illinois, the species is at the southwest margin of its range.
Culture: Growth rate slow. Seedling vigor medium. Vegetative spread rate none. Spreads moderately from seed.
cultivation: Tolerant of coarse, medium, & fine textured soils. Anaerobic tolerance low. CaCO3 tolerance low. Drought tolerance medium. Fertility requirement medium. Salinity tolerance medium. Shade tolerance intermediate. pH 4.5-7.4. Optimum pH 5.6.
Description: Large, deciduous, native tree to 60-75', 3'dbh; recurved frequent branches; bark tan when young, yellow on mature trees, old trees with black platy or bronze-red bark; leaves green to yellow fall color; flowers catkin, -merous; fruits samaras; N 2n = 84. key features: Very closely related to & resembling *B lenta.* A usually distinctive feature is the freely exfoliating bark, but some populations have a close & dark bark (fna)
"Rare, there being only a few small trees in the shallow bogs in Rockton & Shirland Townships." (ewf55 as *B lutea* Michx f)
Comments: status: Endangered in Illinois. phenology: Blooms C3. Wintergreen oil from twigs & buds. Important timber tree, rare. 446,400 (usda) seeds per pound.
Associates: Wind pollinated. Used by sharp-tailed & ruffed grouse, redpoll, pine siskin, beaver, varying hare, porcupine, & moose. Deer eat leaves & buds. Small mammals & aquatic mammals eat smaller stems. Provides cover for birds & small mammals.
ethnobotany: Used as a wash for the "Italian itch".
VHFS: [*B lenta (?)*] [*Betula alleghaniensis* Britt var *alleghaniensis*, *B alleghaniensis* var *fallax* (Fassett) Brayshaw, *B alleghaniensis* var *macrolepis* (Fern) Brayshaw, *B lutea* F Michaux, sometimes seen as *B lutea* Michaux f, B *lutea* var *macrolepis* Fern, *B purpusii* CK Schneid f *fallax* (Fassett) B Boivin] Hybrids are known with *B papyrifera* & *B pumila.*

Betula cordifolia Regel HEART-LEAF BIRCH, aka MOUNTAIN WHITE BIRCH, *BOULEAU À FEUILLES CORDÉES, BOULEAU BLANC,* (*cordifolius* Latin for heart-shaped leaf) Section *Betula.*
distribution/range: Native tree. N 2n = 28, 56.
VHFS: [*Betula alba* L var *cordifolia* (Regel) Regel, *B papyrifera* Marshall var *cordifolia* (Regel) Fern]

Betula glandulifera (Regel) Butler "Plentiful in a few places in Coon Creek bottom." (ewf55) Section *Humiles.*

Associates: Larval host *Polygonia faunus* GREEN COMMA BUTTERFLY.

ethnobotany: Bark used as medicinal plant by Ojibwa (Gilmore 1933). Tea was made from twigs for rheumatism & aches. Bark & twigs contain oil of wintergreen.

Betula lutea Michx (or Michx f) YELLOW BIRCH, (*luteus -a -um* (LOO-tee-us) yellow referring to the yellow-brown bark.)
distribution/range:
Comments: According to FNA, this is an illegitimate (superfluous) name.
Associates: ethnobotany: Sap available anytime (?) Sap used for food by Ojibwa & Pottawatomie (sm32, 33). Used as medicine seasoner. Used for wigwam poles by Pottawatomie (sm33).

Betula nigra Linnaeus BLACK BIRCH, aka RED BIRCH, RIVER BIRCH, (NI-gra; from Latin black, dark for the black bark.) Section *Costatae.*
Habitat: Usually near rivers, borders of rivers & streams, bottomlands woods, swamps. Found along rivers.
distribution/range:
Culture: *B. nigra* ripens in spring and will germinate without cold moist stratification. Code A seeds will germinate within 4 weeks sown at 70ºF, & H seeds require light to germinate. (cu02) 168,752 (jfn2004) seeds per pound. Does not like alkaline soil. Optimum pH 6.0. zone 3
Description: Large, deciduous, native tree, 40-75', 80' crown spread; cinnamon (reddish) & white flaking bark; 2n = 28. Seeds ripen in spring.
Associates: Upland game birds eat catkins, buds, & seeds. Songbirds (esp., common redpoll) eat seeds. Beavers & terrestrial furbearers eat various parts. Deer eat twigs & foliage. Used by beaver, redpoll, & pine siskin. Evidently more resistant to birch borer (bronze birch borer) than paper birch.

ethnobotany: Ojibwa medicinal plant for pain in stomach (den28).
VHFS: [*Betula rubra* F Michx]

Betula papyrifera Marshall PAPER BIRCH, aka CANOE BIRCH, WHITE BIRCH, *Wi'gwasa'tig,* no translation (*papyriferus -a -um* (pa-pi-RI-fe-rus) paper bearing, papyrus-bearing, but not paper-like in some sources, from Latin *papȳrus*, the papyrus or paper-reed of the Nile, also writing-material made of it, from Hellenistic Greek πάπυρος, *papyros,* the papyrus-reed, & the Latin verb *fero, ferre*, to bear, bring, carry.) Section *Betula.*
Habitat: Rich, moist hillsides & stream, lake, & swamp borders. distribution/range:
Culture:

Not suitable for hot dry sites or Illinois prairies. Needs cool locations, best grouped or in clumps. Hardy to zone 2. Optimum pH 5.6.
Description: Medium tree 50-70'; yellow fall color; N 2n = 56, 70, 84.
Comments: The familiar white peeling-barked birch of our landscapes.
Associates: Used by sharp-tailed & ruffed grouse, redpoll, pine siskin, beaver, varying hare, porcupine, moose, & deer.

ethnobotany: Ojibwa medicinal plant for stomach pain (den28). Used as dye by Ojibwa (sm32). Bark used for making canoes, buckets, kitchen utensils, house covers, etc., by Ojibwa, Pottawatomie, & other tribes (sm32, 33). This & white cedar are the two most sacred trees of the Ojibwa. Birch bark resists decay (sm32). Birchbark containers keep contents from decay, even gummy maple syrup for a year. Also used technologically by Sioux (den28).
VHFS: [*Betula alba* L var *elobata* Fern, *B alba* L var *papyrifera* (Marshall) Spach, *B papyracea* Aiton, *B papyrifera* Marshall var *elobata* (Fern) Sarg, *B papyrifera* Marshall var *macrostachya* Fern, *B papyrifera* Marshall var *papyrifera*, *B papyrifera* Marshall var *pensilis* Fern, *B papyrifera* Marshall var *commutata* (Regel) Fern, *B papyrifera* Marshall var *subcordata* (Rydb) Sarg, *B subcordata* Rydb]

Betula pendula Roth EUROPEAN WHITE BIRCH, aka EUROPEAN WEEPING BIRCH, WEEPING BIRCH, (*pendulus -a -um* pendulous, hanging, from Latin *pendulus*, hanging, in suspense, undecided, from *pendēre,* to hang, akin to Latin *pendere* to weigh, estimate, pay, *pondus,* weight, pound)
distribution/range: Introduced, escaped tree. 2n = 28, 56.
VHFS: Synonyms for cv *Dalecarlica*: [*Betula alba* L var *dalecarlica* Lf, *B pendula* Roth f *dalecarlica* (Lf) CK Schneid, *B pendula* Roth var *dalecarlica* (Lf) Rehder]

Synonym for variety *pendula*: [*Betula verrucosa* Ehrh]

Betula populifolia Marshall GRAY BIRCH, aka WHITE BIRCH, (*populifolius* poplar-leaved, from *popul-*, *Populus*, &

distribution/range:
Culture: Surface sow, seeds are very small or need light to naturally break dormancy & germinate. Further germination pretreatments not sure? (pm09).
Comments: "Abundant in a few places in Kent Creek bottom, the bogs in Rockton & Shirland Townships & in Laona Township west of Yale bridge as well as in northern Boone. The size, shape, & serration of the leaves vary greatly." (ewf55) 2n = 56.
Associates: ethnobotany: Used as medicinal plant by Ojibwa (sm32). Stems used for basket ribs by Ojibwa (sm32).
VHFS: [*Betula borealis* Spach, *B glandulifera* (Regel) BT Butler, *B glandulosa* Michx var *glandulifera* (Regel) Gleason, *B glandulosa* Michx var *hallii* (TJ Howell) CL Hitchc, *B hallii* TJ Howell, *B nana* L var *glandulifera* (Regel) B Boivin, *B pubescens* Ehrh subsp *borealis* (Spach) A&D Löve, *B pumila* L var *glandulifera* Regel, *B pumila* L var *glabra* Regel, *B pumila* L var *pumila*, *B pumila* L *renifolia* Fernald]

Betula X purpusii CK Schneid PURPUS' BIRCH *Betula alleghaniensis* Britton X *B pumila* L

Betula X sandbergii Britton SANDBERG'S BIRCH *B papyrifera* X *B pumila* "In northern Shirland Township are shrubs that closely agree with the description of this hybrid given in Rosedahl & Butters "Trees & Shrubs of Minnesota." (ewf55)

CARPINUS Linnaeus 1753 BLUE-BEECH, HORNBEAM, IRONWOOD, MUSCLE-TREE, WATER-BEECH *Betulaceae* Subfamily *Coryloidaea* sometimes placed in *Carpinaceae* (kar-PEEN-us) From Latin *carpinus*, hornbeam, possibly from *carpentum,* a Roman horse-drawn vehicle with wheels made from its hard wood. Deciduous trees, about 25 species worldwide, mostly in the north temperate zone. One (or two) species of trees with smooth muscular blue-grey bark in eastern North America, one species in the mountains of Mexico & Central America, & one introduced species that may persist in the wild. X = 8.

Harvest seeds fall into early winter. Sow seeds immediately and place in a warm location to after-ripen then place outside in an unheated coldframe. Some germination the 2nd spring. Code D seeds need a period of warm moist stratification followed by cold stratification and will germinate after shifting back to warm (70º-40º-70º). (cu02)

Carpinus caroliniana Walter AMERICAN HORNBEAM, aka BLUE BEECH, *BOIS DE FER, CHARME DE CAROLINE,* IRONWOOD, MUSCLE TREE, MUSCLE WOOD, MUSCLEWOOD, WATER BEECH, (*carolinianus* ca-ro-lin-ee-AH-nus; of Carolina, Carolinian)
Habitat: Moist rich woods, swamps, & stream edges. Damp woods & shade. "Uncommon in woods especially on stream banks." (ewf55) distribution/range: Native to Canada down through Texas across to Florida.
Culture: Plant fresh seed or keep moist. Refrigerate clean seed in a ziplock bag until planting or starting other treatment (pm09). Cold moist stratification required. Growth rate slow. Seedling vigor low. Vegetative spread rate none. Spreads slowly by seed. 30,000 (usda, ecs) seeds per pound.

asexual propagation: Cuttings can be rooted, but they are difficult

cultivation: Doesn't transplant well, best from containers; prefers, deep fertile, moist, acidic soil, full sun to shade; prune tolerant. Tolerant of deep shade. Tolerant of coarse & medium textured soils. Anaerobic tolerance low. CaCO3 tolerance low. Drought tolerance low. Fertility requirement medium. Salinity tolerance none, sensitive to salt. Shade tolerant. pH 4.0-7.0, optimum pH 6.5. Hardy to zone 3.
Description: Native, large, deciduous shrub to a medium understory tree, multi-stemmed, wide spreading, flat-topped crown, 20' to 30' tall & as wide or wider, muscular stems, fine texture, medium texture; roots 20" minimum depth; bark "muscley" smooth, gray bark, fluted base, vertical ridges, slender, dark brown, hairy stems; leaves alternate, simple, deciduous, 2.5" long & 5" wide, oblong, doubly-serrated margin, dark green, glabrous; fall color yellow, orange, & red, variable (red-orange to yellow-red-orange); flowers monoecious with male & female flowers on the same plant, female flowers are 4" long catkins & are attached to a 3-winged bract, male flowers are not ornamentally important, blooms in April, flowers -merous; fruits unusual yellow fall fruit, a nutlet subtended by a 3-winged, leaf-like bract, 1" long, numerous nutlets are held together in pendulous chain-like clusters, color changes from green to yellow to brown in September - October; subspecies *virginiana* N 2n = 16. key features: " Fruit is a small ribbed nutlet; flattened trunk with smooth blue-gray or ashy-gray bark; pendulous catkins." (Ilpin) Small, imbricate buds, 0.25" long, buds pointed & hairy, alternate leaves, clusters of nutlets with 3-winged bracts, fluted, muscle-like bark, dense, clean summer foliage.
Comments: status: Native. phenology: Blooms 4-5. Fruits ripening September to October. C3. Landscape uses shade, lawn or park tree, naturalized areas, hedges or screens.
Associates: Wind pollinated. Waterfowl (esp wood ducks) & songbirds eat seeds. Upland game birds eat seeds, buds,

virginiana (Marshall) Sudw 1893, not Miller 1768] Expand variety discuss from w12. Ornamental cultivars & varieties are few & hard to find.

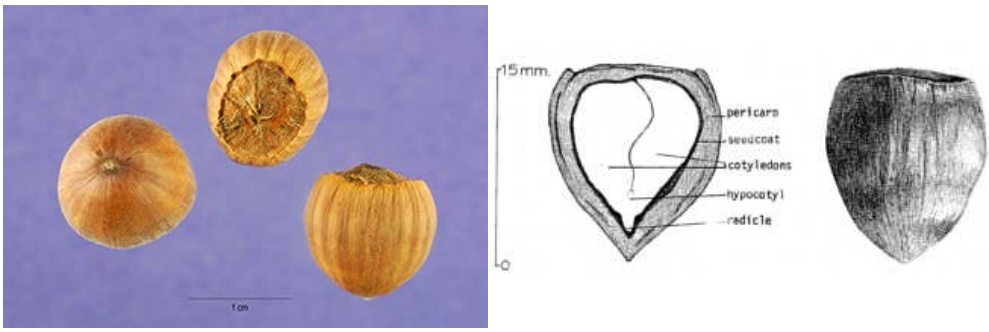
CORYLUS Linnaeus 1753 **HAZELNUT, FILBERT** *Betulaceae* Subfamily *Coryloidaea* sometimes placed in *Corylaceae*. *Corylus* (KO-ril-us) From Latin *corylus*, hazel from the classic Greek name, *korylos,* from Greek *korus*, helmet, for shape & hardness of nutshells, or in reference to the involucre. Corylus is a genus of 15-18 species of shrubs & trees of the temperate regions of the Northern Hemisphere. Deciduous, brushy shrubs, bark without lenticles, infructescence a cluster of small nuts each enclosed in a loose involucre of leaflike bracts, fruit a nut. x = 11. The Eurasian *C avellana* Linnaeus & *C maxima* P Miller are the HAZELNUTS & FILBERTS of commerce. HAZELNUTS are used to flavor Frangelico liqueur.

Corylus americana Walter HAZELNUT, aka AMERICAN HAZELNUT, AMERICAN FILBERT, HAZEL, *NOISETIER D'AMÉRIQUE, BAGAN,* nut, bark, burs, & wood (Ojibwa) facu-
Habitat: Dry woodlands & savannas, thickets, common, dry or moist woods, thickets, borders of woods. Not for poorly drained or dry sites. Thickets, dry woods, unburned prairies, old fields, sandy, gravelly, or rocky soils. "Along streams, hedgerows, meadows, woodlands, roadsides, & forest margins. It grows best on rich, moist, well-drained soils" (Coladonato 1993). distribution/range:
Culture: Propagation by seed & cuttings. Fresh seed, do not dry, briefly cold store. Dormant seed or moist cold stratify (60-180 days). Fast growth rate. 464 (aes10); 476; 491 (usda) seeds per pound. Seed available fall only.
cultivation: Plant 700-1700 plants per acre. Transplants well B&B. Tolerant of poor soils. Containerized transplants best, prefers well-drained, loamy soil, full sun to partial shade, prune anytime. Optimum pH 6.5. Hardy to zone 4(3).
Description: Native, erect, deciduous, shrub, l, multi-stemmed, leggy, wide-spreading form; colonial; suckers from roots, variably 4.0-8.0(-15)', spread is slightly greater than the height, coarse texture; bark smooth light gray young branches erect, pubescent, bark brown; leaves alternate, simple, deciduous, 3" to 6" long, 1.5" to 2.5" wide, heart-shaped leaf base, serrated leaf base, pubescent, dark green; fall color copper-red (variously yellow to red to purple); flowers are yellow-brown, male catkins, 1.5" to 3" long, in very early spring before leaves emerge, flowers monoecious, wind pollinated; small, edible nuts, 0.5" diameter, ripening starting in August-September, nut enclosed in involucre (leaf-like bracts or husks), edible; N 2n = 22, 28. key features: Male catkins on the sides of small branches, nuts sometimes partially visible between bracts (fh). Alternate leaves, pubescent leaves, suckering habit, nut covered by an involucre, large male catkins in spring, pubescent young stems.
Comments: status: Sometimes considered weedy & a pest in highly managed forests. phenology: Blooms March - April. Nuts ripen in August - September. Landscaping, erosion control, used for naturalized areas, for nut production, for difficult, dry sites, & as a barrier or wooded border.
"Roughs" along "the margins of 'sloughs,' and along the courses of small streams" (Short 1845).
"Usually 4 or 5 feet tall. At one place in Coon Creek bottom it is 12 feet or more high." (ewf55)
Associates: Good wildlife cover. Larval host of larval host *Amorpha juglandis* WALNUT SPHINX MOTH. Attracts small mammals & upland gamebirds. Upland gamebirds eat catkins, buds & nuts. Songbirds (esp. red-bellied woodpeckers) eat nuts. Terrestrial & aquatic furbearers, including beavers, eat nuts, stems, & foliage. Small mammals eat nuts. Deer & moose eat twigs, foliage, & catkins. Used by ruffed grouse, beaver, varying hare, chipmunk, & wood duck. Subject to several minor insect pests & diseases, including blight & leaf spot, rarely causing problems.
ethnobotany: Nuts available in August to September (good crop every 2-3 years). Used for food by Ojibwa, Menominee, Kickapoo, & Iroquois (sm23, 32, Hunter 1823b, Waugh 1916). Used as medicinal plant by Ojibwa (sm32). Also used for dye by Ojibwa (den28) & basket ribs & brushes of stems by Ojibwa (sm32).
VHFS: [*Corylus americana* Walter f *missouriensis* (A DC) Fern, *C americana* Walter var *altior* Fernald, *C americana* Walter var *indehiscens* EJ Palmer & Steyerm, *C. americana* Walter var *missourensis* A DC]
Cultivars or horticultural varieties none.
M Coladonato, 1993. *Corylus americana*. In: Fire Effects Information System, [Online]. U.S Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/plants/shrub/corame/all.html [2012, May 6].

Corylus cornuta Marshall BEAKED HAZELNUT, (*cornutus -a -um* horned, bearing horns or spurs, usually referring to flowers, occasionally the fruit)
Habitat: Thickets, along stream banks, & on borders of woods. Ravines along the clay bluffs of Lake Michigan. Hardy to zone 3. distribution/range: Generally a northern & eastern distribution.

33). Known from Juntunen & Isle Royale & found growing at Juntunen. Densmore (1928) lists *Corylus rostrata*, HAZEL, *Bagan'* as Ojibwa utility & lung medicine plant.
VHFS: Midwestern plants are the widespread variety or subspecies *cornuta*. [*Corylus cornuta* Marshall var *cornuta*, *C cornuta* Marshall var *megaphylla* Vict & J Rousseau, *C rostrata* Ait]

The variety (subspecies) *californica* is far western & grades into variety (subspecies) *cornuta*.



Corylus cornuta

OSTRYA Scopoli 1760 **HOP-HORNBEAM, IRONWOOD** *Betulaceae* Subfamily *Coryloidaea*, placed by some authors in *Carpinaceae* or *Corylaceae*. *Ostrya* (OS-tree-a) from New Latin *ostrya*, hop-hornbeam, from Greek *ostryos*, *ostrys* scale, in reference to the scaly infructescences; alternately from Greek *ostrua,* meaning bone-like, in reference to the very hard wood; probably akin to Greek ὄστρακον*, ostrakon,* shell or potsherd, ὀστέον*, osteon,* bone, & to Greek *drys* tree. *Ostrya* is a genus of 5-9 species of trees (3 species in northern North America) of temperate regions of the Northern Hemisphere. Deciduous broadleaf trees with rough, shreddy bark & infructescence an inflated, cone-like cluster of nuts.

Ostrya virginiana (P Miller) K Koch AMERICAN HOP-HORNBEAM, aka IRONWOOD, LEVERWOOD, *Ma'nanous'* (Ojibwa) ((vir-jin-ee-AH-nus) of Virginiana)
Habitat: Upland woods, rocky slopes along streams. In the se USA, "Mesic to dry forests, often rocky, especially over basic rocks, reaching high elevations" (w12). Hardy to zone 2. distribution/range:
Description: Small pyramidal, deciduous, native tree, to 35', elm-like branches & leaves, fine textured; "catkins" of seed in small inflated sacs, persisting into winter.
Comments: status: Native. phenology: Blooms Species has done well in urban street plantings. "Common on wooded stream banks. One tree on Kishwaukee River bank near Camp Rotary has laciniate leaves that resemble a horticultural variety of *Betula pendula*. Since there is only one tree we assume that it is a sport & not a definite form." (ewf55)
Associates: Upland gamebirds eat buds & catkins. Songbirds eat seeds. Terrestrial furbearers & small mammals eat seeds & buds. Deer eat twigs & foliage. HORNBEAM is a reported larval host for *Satyrium liparops* STRIPED HAIRSTREAK BUTTERFLY.

ethnobotany: Bark used as medicinal plant by Pottawatomie & Ojibwa (sm33, den28). Ojibwa medicine for kidney trouble (den28). Bark & inner wood are antiperiodic, tonic, & alterative (den28). Wigwam poles by Ojibwa (den28).

One of the hardest & heaviest native woods.
VHFS: [*Carpinus virginiana* Mill, *O virginica* Willd var *glandulosa* Spach, *O virginiana* (Mill) K Koch f *glandulosa* (Spach) JF Macbr, *O virginiana* (Mill) K Koch f *virginiana*, *O virginiana* (Mill) K Koch subsp *lasia* (Fern) E Murray, *O virginiana* (Mill) K Koch var *glandulosa* (Spach) Sarg, *O virginiana* (Mill) K Koch var *lasia* Fern, *O virginiana* (Mill) K Koch var *virginiana*]

BIGNONIACEAE AL de Jussieu 1789 **BIGNONIA FAMILY** The type genus *Bignonia* is named for Abbé Jean Paul *Bignon*, 1662-1743, librarian to Louis XIV. About 110 genera & 800 species of trees, shrubs, & lianas, mostly tropical, especially of South America. Woody plants (vines or trees) with showy tubular trumpet-like flowers. Fruit a bean-like pod usually with winged seeds. Sepals (5); Petals (5)z

Bignonia, CROSS-VINE, seed germinates with no treatment, & semi-hard cuttings with 1000-2000 ppm IBA (cu02).

CAMPSIS Loureiro 1791 **TRUMPET-CREEPER** *Bignoniaceae Campsis* (KAMP-sis) from Greek, *campsis*, curvature, or *kamptos*, something bent, for the curved stamens. New Latin, from Greek *kampsis* bending; from the curved stamens; akin to Greek *kampē* bend, turn. A genus of 2 species with a relictual distribution, one in southeast North America & one in east Asia, *C grandiflora* (Thunberg) K Schumann. Molecular divergence dates the species divergence at 24.4

Culture: Sow 8 wks @ 39ºF, germ. @ 68ºF , 10-15d , can be invasive (tchn). No treatment or moist cold stratify (60), seeds need light, warm moist stratification.

Cullina code B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF. Cullina recommends sowing the seeds outside in the fall. 1st year plants must be frequently tip pruned to prevent them from rooting into adjacent pots. Easiest from seeds, cultivars may be grown from 2-3 node cuttings in early summer treated with 100 ppm IBA, rooting ca 3 weeks. (cu02)

asexual propagation: Cuttings, division. Easiest from seeds, cultivars may be grown from 2-3 node cuttings in early summer treated with 100 ppm IBA, rooting ca 3 weeks. (cu02) Suckers can be separated from the mother plant, with a section of rhizome and potted.

cultivation: Hardy to zone 4. Some strains hardy to -34ºF.

Description: Perennial, woody vine, high-climbing, rhizomatous, suckers at some distance from mother plant; large red-orange trumpet-shaped flowers, 5-merous, 3" long, with bean-like seedpods in fall; papery seeds. key features: "Even when the foliage can not be seen, *Campsis* is immediately recognizable by its shreddy tan or yellow bark (unlike any of out other high-climbing vines." (w07) "No tendrils, climbing by aerial rootlets." (Ilpin)

Comments: status: Introduced, locally established. Species is considered weedy or aggressive by some authorities in some areas (Haragan 1991, Uva et al 1997, SWSS 1998). phenology: Blooms 6,7,8,9. C3. An old-fashion landscape plant, very showy in midsummer bloom, when untended it becomes aggressive from suckers. Excellent planted along fences of in wild borders. Forms a fence only an emaciated rabbit can get through. Plantings should be mowed around several times per year to control the size of the colony. In a pre-Columbian context, this plant was probably native to swamps & bottomlands. Aggressive, suckers. Some may think persistent pods are unsightly.

"Much planted as an ornamental & showing some tendency to go wild in the Sugar River sand area & about Camp Grant." (ewf55)

"In September of 1786, in the Botanical Garden of Padua, I gazed upon a broad, high wall completely covered with *Bignonia radicans*. The clusters of deep-yellow, chalice-like flowers, growing in endless luxuriance, made such an impression upon me that I became especially attached to this plant, always devoting special attention to it when I encountered it in botanical gardens, in my own garden, & in the parks of Weimar, where it was a favorite."

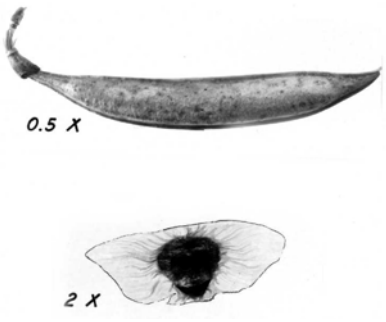
"We may plant the grapevine to twist & trail where ever we deem suitable, for it can fasten itself anywhere by means of its forks. But a strikingly beautiful plant like *Bignonia radicans* should be planted high, & allowed to grow downward. Located in this manner in a sunny spot, it will soon put forth a wealth of golden clusters, whereas until now this strikingly decorative plant, though cultivated with special care, has yielded only limited results." Johann Wolfgang Goethe, Dornburg, August 26, 1828.

Associates: Attracts hummingbirds. *Icterus galbula,* Baltimore Oriole & *Icterus spurius*, Orchard Oriole will perforate the flowers of *C. radicans* near the base & steal nectar (Hilty).

ethnobotany: ☠ Poisonous, may cause dermatitis.

VHFS: [*Bignonia radicans* L, *Tecoma radicans* (L) Juss]

http://www.illinoiswildflowers.info/flower_insects/insects/birds.htm#balt_oriole



Seed drawings by Suzanne Foster, courtesy of USDA; Seed photo Steve Hurst - USDA-NRCS PLANTS Database - Not copyrighted image.

CATALPA Scopoli 1777 **CATALPA,** aka **CATAWBA, CANDLE TREE, CIGAR TREE, INDIAN BEAN** *Bignoniaceae*
Catalpa (ka-TAL-pa) from the Creek (Muskogean) Indian name for the tree, *kutuhlpa*, "head with wings", referring to the flower lobes or seeds. Eleven (10) species of deciduous trees & shrubs, in eastern North America (2 species), West Indies (4 species), & East Asia (4 species) (w10). Other authors list many more species. Native to the southern United States, but much planted or escaped in the north. Both species were originally adapted to open floodplains & river bottomlands. The two species are similar, have large, heart-shaped leaves, opposite or in whorls of three; large very showy white flowers in late spring or early summer; & thin, long, seedpods, which remain on the tree through winter. The base of each leaf has small, extrafloral nectar gland where the primary veins meet the leaf stem. Here in the frigid north, CATALPAS may drop their leaves at the first frost.

The flowers are strikingly beautiful, but do like Bill Clinton, & don't inhale. Control the urge to inhale the fragrance of CATALPA, since the fragrance is rumored to be poisonous. (*Rumor has it Bill was with the southern rock group Black Oak Arkansas when he did not inhale; perhaps everyone was under a blooming Catalpa and not inhaling*.) Larval host of *Ceratomia catalpae* CATALPA SPHINX MOTH & *Xylophanes tersa* TERSA SPHINX MOTH.

Harvest seeds in late fall into winter. Code H seeds require light to germinate, and H seeds require light to germinate. Store pods or cleaned seed in the refrigerator until ready to plant in spring. Surface sow seed and cover with a light layer of sand. Germ in a few weeks. Cotyledons are lobed. Move to liners after 1st true leaves develop.

Perhaps *Catalpa* may have lost an ecological partner and was still moving north after the Wisconsinan glaciation? Sp will probably will be a part of our climate change future.

Characteristics:

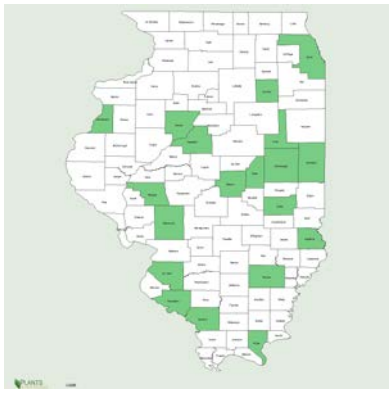
Flowers white or pale rose, striped inside with yellow & spotted with purple; leaves rarely lobed; seeds elongate, 4-10 mm long, 20-35 mm wide.

Corolla 2-4 cm wide, the lower corolla lobe densely spotted with purple, not notched; fruits 5(6)-10 mm in diameter, each valve 9-15 mm wide when flattened; seeds with 2 elongated wings, each wing narrowing to an acutish end, the hairs at the end appressed to one another in 2 planes, thus forming a pointed tail; crushed leaves with an unpleasant, fetid odor *C bignonioides*

Corolla 4-6 cm wide, the lower corolla lobe sparsely spotted with purple, notched; fruit 12 (10-15) mm in diameter or wider, each valve 13-18 mm wide when flattened; seeds with 2 elongated wings, each wing narrowing only slightly to a rounded or oblique end, the hairs at the end appressed to one another only in one plane, thus forming a flattish tail; crushed leaves without an unpleasant odor *C speciosa*

After Mohlenbrock (2002) & Weakley (2010)

Catalpa bignonioides Walter COMMON CATALPA, aka CIGAR TREE, INDIAN BEAN, INDIAN BEAN TREE, LADY CIGAR TREE, SOUTHERN CATALPA, (*bignonoides* (big-no-nee-OI-deez) like or resembling *Bignonia,* Trumpet-flower-like) Several common names are in reference to the distinctive fruit.



Habitat: Along streams, in fields, along roads & railroads. Hardy to zone 4.

distribution/range: The original range was from the Ohio River Valley & southern Illinois to Missouri & Arkansas. Others say the Gulf Coastal Plain. Occasional throughout Illinois.

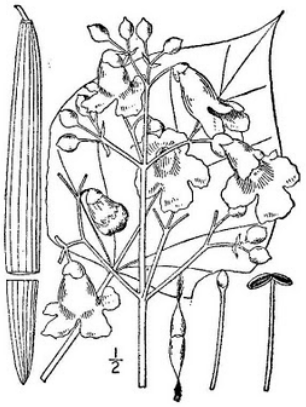
Description: Deciduous, native tree, 25-40', spread equal or greater; bark becomes flaky on old plants; large coarse leaves, foul-smelling when bruised, clusters of smaller, flowers white-purple speckled with unnotched petals in summer; fruits are "cigar-like" pods in the fall, persisting into winter; seeds flattened, with papery wings. "Flower is conspicuously purple mottled; leaves, when crushed, give off an unpleasant odor." (Ilpin)

Comments: status: phenology: Leaves emerge mid May. C3.

"Much planted in town & country as an ornamental & on high prairie is the "tree claims". It has a definite tendency to go wild." (ewf55)

Associates: ☠ "People may develop dermatitis from flowers; flower odor may be poisonous." (Ilpin)

VHFS: [*Catalpa catalpa* (Linnaeus) Karsten]



Catalpa bignonioides

Catalpa ovata G Don CHINESE CATALPA (*ovatus -a -um* (o-VAH-tus) ovately shaped, from Latin *ovatus*, from *ovum* egg & *-atus* -ate)
Introduced, escaped tree. Known from Maryland, Pennsylvania, West Virginia, & Wisconsin.

Catalpa speciosa (Warder ex Barney) Warder ex Engelm. *IN HARDY CATALPA, aka CATAWBA TREE, CIGAR TREE, INDIAN BEAN, NORTHERN CATALPA, WESTERN CATALPA, (*speciosus -a -um* (spee-kee-O-sus) beautiful, showy, spectacular, splendid, good-looking; from Latin *speciosus*, adj, beautiful, handsome, good-looking; attractive, appealing; presentable, respectable, imposing; spectacular, brilliant, impressive, splendid; showy, public; plausible, specious.)
Several common names are in reference to the distinctive fruit.

Habitat: Low woods, swamps, moist ground, & alluvial soils, now escaped from plantings, roadsides, waste places. Hardy to zone 3. distribution/range: Native in the southern ¼ of Illinois, escaped from cultivation into disturbed areas in the rest of Illinois. The original range was from South Carolina into Mississippi, into the northern Mississippi River embayment? Weakley (2010) gives the original range as the northern Mississippi River embayment, southern Indiana & southern Illinois south to west Tennessee & eastern Arkansas. *C speciosa* is the northernmost species of this tropical group in the western Hemisphere. Much planted & persisting in old wood lots & around old farmsteads; more common than mapped, but when you have lived in Bureau & Whiteside cos all your life, everything is!.
Culture: Seeds require no treatment. "Capsules split & disperse seed in late winter or early spring. Collect fruits after capsules brown & begin to dry. Insect infestation is likely if left on the tree too long. Dry, cold storage is recommended." (lbj)

asexual propagation: Semi-hardwood cuttings in late summer or root cuttings in late fall.

cultivation: Rapid grower & adapted to a variety of soils & sites. Poses several litter problems, spent flowers, small branches, large leaves, & seedpods. Weak wooded, losing branches in storms. Trees may be short-lived, typically 50 years. The shade tree on then Ill Rt 88, where my mother placed my baby buggy in the shade in the early 1950s, came down in 2011, at least 75 years old. (*She flipped out when a Catalpa worm dropped into my buggy.*) Judging by the stump, it was a classic Keebler™ tree.

"I am able, indeed, to indicate but two trees which are in any way peculiar to the forests of Illinois; and these are the paccan and the catalpa. … The other tree ---the catalpa, (*Catalpa cordifolia*,) I have on the authority of General Harrison for saying, is found occasionally, and of large size, in the alluvions of the Wabash river, where he considered it to be a native; in opposition of the Abbé Correa, who thought it more probable that the seeds may have been derived from trees planted by the early French settlers of Vincennes and other posts. I have seen this tree in similar alluvions among the dense forests of Henderson county, Kentucky." *C speciosa* Warder ex Engelm as *Catalpa cordifolia* J St Hil ex Duham (Short 1854).

Description: Coarse, deciduous, native tree, to 60' (75-100') tall; narrow, oval crown; bark grayish to reddish brown, forming thick scales, ridged in age: leaves heart-shaped, longer-pointed & odorless, smooth, petioles to 8", leaf blades 12" long, 8" wide; fall color poor, leaves often dropping before turning; inflorescences terminal, upright panicles on outer branches; flowers large, showy, white with yellow streaks & purplish spots, bell-shaped with frilled rims, to 2"

Comments: status: Introduced, escaped. Rare in Indiana. phenology: Blooms May-June. C3. Saplings can be weedy along railroads. Narrower, but larger & hardier than *C bignonoides*. Rapid grower & adapted to a variety of soils & sites. In our area, it is not an invader, but persists near old habitations & other areas where it was planted. It reproduces, but seldom at any great distance from the mother tree.
Associates: Bumblebees, *Bombus*, & large carpenter bees, *Xylocopa virginica*, are the main daytime insect pollinators. Fifteen moth species are daytime & evening pollinators including *Ctenucha virginica,* the VIRGINIA CTENUCHA, an ARCTIID MOTH, *Euchlaena serrata*, SAW-WING, *Itames,* ITAMES, *Lytrosis unitaria,* COMMON LYTROSIS, *Scopula limboundata*, LARGE LACE BORDER, *Tetracis crocallata,* YELLOW SLANT-LINE, & *Xanthotype sosepeta*, CROCUS GEOMETER, INCHWORM or GEOMETER MOTHS, *Malacosoma americanum,* EASTERN TENT CATERPILLAR MOTH, LOOPER MOTHS, *Plusia*, & *Sphinx eremitus,* the HERMIT SPHINX. Larval host of *Ceratomia catalpae*, CATALPA SPHINX MOTH & *Xylophanes tersa,* TERSA SPHINX MOTH. Susceptible to leaf blight & defoliation by sphinx moth caterpillars.
ethnobotany: ☠ "People may develop dermatitis from flowers; flower odor may be poisonous." (Ilpin)
VHFS: *Catalpa cordifolia* J St Hil ex Duham, *Catalpa speciosa* Warder.
Catalpa bignonioides var *speciosa* Mehan (basionym)

Catalpa speciosa

CAPRIFOLIACEAE A L de Jussieu 1789 **HONEYSUCKLE FAMILY** See the miscellaneous dicots section.

CELASTRACAEAE R. Brown 1814 **BITTERSWEET or STAFF TREE FAMILY** A family of about 98 genera & 1200 species of trees, shrubs, lianas, perennial & annual herbs, mostly cosmopolitan. Fruits capsules free from the calyx with 2-5 cells, seeds ariled.

CELASTRUS Linnaeus 1753 **BITTERSWEET** *Celastraceae Celastrus* (kel-A-strus) from Greek *kelastros*, a name for an evergreen tree. The genus name is conserved as grammatically masculine. A genus of about 30 species of woody

Celastrus scandens Linnaeus AMERICAN BITTERSWEET, aka AMERICAN MAZERION, CLIMBING BITTERSWEET, FALSE BITTERSWEET, TIVERTWIG, WAXWORK, STAFF TREE , *Bima'kwud,* twisting round (Ojibwa) (*scandens* scandent, climbing, from Latin *scandens, scandent-,* present participle of *scandere* to climb.) [upl]
Habitat: Mesic, dry, & sand savannas, woods, thickets, & river banks, rich soil, along fencerows, by streams, thickets, roadsides, in woodlands, & riverbanks. "Common in thickets, woods, & fence rows." (ewf55) distribution/range:
Culture: Plant fresh seed or keep moist. Refrigerate clean seed in a ziplock bag until planting or starting other treatment. 150 days cold moist stratification (pm09). Macerate, dormant plant or moist cold stratify (90 days). 28,375 (gnh11); 28,800 (pm02); 32,170 seeds per pound.

Fruits ripen fall and split open, collect fall into winter. Remove the red aril by soaking seeds in water, running through blender, & rinsing clean. Code B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF, G chemical inhibitors, & * seeds are hydrophilic, intolerant of dry storage. Best to sow outdoors in fall. Blooms in 2 years. (cu02)

asexual propagation: Stem cuttings from expanding growth at any time treated with 1000 ppm IBA. Rooted cuttings grow rapidly and will need tip pruning to prevent a tangled mess. Flats can be cut back hard in winter. (cu02)

cultivation: Hardy to zone 4.

bottom line. Macerated seed must be slightly dried & stored in ziplock in refrigerator until dormant seeded. Consistently strongly dormant (64-91%).
Germ 1.3, 2.0, 2.0, sd 0.9, r0.0-2.0 (2.00%. Dorm 82, 91, 91, sd12.7, r64-91 (27)%. Test 35, 35, na, r29-40 days.**
Description: Deciduous, woody, twining, native vine; flowers green inconspicuous, followed by showy orange capsules with red berries inside, clusters at the end of shoots, occasionally forming large colonies. key features: "This is a twining shrub; capsule is orange or orange-yellow with scarlet or crimson aril covered seeds." (Ilpin)
Comments: status: phenology: Blooms 5,6. C3. Attractive dried fruit clusters used in fall arrangements. Landscaping, trellises woody, climbing vine, very showy fruit. The "berries" *may* persist until spring. Seed source fence lines, Green River Lowland, Bureau Co.

Dioecious or polygamo-dioecious.

Our native species is related to the east Asian species. The native *C scandens* has flowers in terminal panicles or racemes, leaves ovate to ovate-oblong & finely serrate. The introduced *C orbiculatus* has yellow capsules with red seedy berries, with cymes in the leave nodes, leaves suborbicular & crenate.
Associates: Upland gamebirds eat seeds & buds. Songbirds eat seeds. Terrestrial furbearers (esp. rabbits & squirrels) eat seeds & leaves.

ethnobotany: Pollen may cause hay fever. Cambium was an important famine food for Ojibwa, Menominee, & Pottawatomie, used in winter by Ojibwa to make soup (sm32, 23, 33). Tender branches eaten boiled. Used as medicinal plant by Ojibwa as a physic & for eruptions (den28; sm32). Noted poisonous by Sioux; bark said to be emetic, diaphoretic, & alterative (den28).

EUONYMUS Linnaeus 1753 **SPINDLE-TREE, EUONYMUS, STRAWBERRY-BUSH, WAHOO** *Celastraceae Euonymus* (ew-ON-i-mus) from the classical Latin name, *euonymus,* spindle tree, from Greek *euōnymos*, having an auspicious name, from εὖ-, *eu-*, well, good, & ὄνομα, *onoma,* name. The name was spelled by Linnaeus as *Euonymus* & *Evonymus*. The genus name is now considered grammatically masculine, with all specific epithets ending in "*us*". A genus of about 129 species of deciduous & evergreen trees & shrubs, & lianas. Fruit is a capsule, colored, 5-angled, 5-celled, 5-valved, seeds ariled.

Euonymus atropurpureus Jacquin WAHOO, aka AMERICAN WAHOO, BURNING BUSH, BURSTING HEARTS, EASTERN WAHOO, SPINDLE TREE (*atropurpureus -a -um, atro-purpureus* (aht-ro-pur-PEWR-ree-us) deep or dark purple as SWEET SCABOIUS, blackish purple, from Latin *ex atro purpureus*, purple tinged with black.) fac-
Habitat: Mesic savanna, sandy fencerows. "Not uncommon in woods, mostly near streams." (ewf55) Hardy to zone 3. distribution/range:
Culture: Seeds are double dormant. Macerate*, dormant seed, sow in permanent location. Sow fresh seed in nursery bed in late fall for germination in two years. 10,380 seeds per pound.

Softwood cuttings, small suckers can be lifted & potted.
Description: Large colonial, deciduous, native shrub, 8-15'; good red fall color; flowers purple, followed by red bitter-sweet-like, pale pink fruits;
Comments: status: phenology: Blooms 5,6. C3. Landscaping, attractive specimen plants. May sucker in the lawn.
Associates: Pollinated by bees & flies. Seeds dispersed by birds. Apparently subject to powdery mildew,
VHFS: [*Euonymus atropurpurea*]




Euonymus atropurpureus, fall color with *Smilax* sp

Euonymus obovatus Nuttall RUNNING STRAWBERRY EUONYMUS, aka RUNNING STRAWBERRY BUSH. (*obovatus -a -um* inverted ovate, obovate.)
distribution/range:
Deciduous groundcover with large bristled red fruit capsules. key features: "Flowers also may be axillary, solitary, greenish-purple; fruits are orange-red or scarlet.) (Ilpin) Zone 6.

CLETHRACEAE Klotzsch 1851 **CLETHRA FAMILY**

CLETHRA SWEET PEPPERBUSH, WHITE-ALDER, CLETHRA *Clethraceae* (KLETH-ra) from the Greek *klethra,* alder. Deciduous trees & shrubs.

Clethra alnifolia Linnaeus SWEET PEPPER BUSH ((al-ni-FO-lee-us) *Alnus*-leaved.)
Habitat: Eastern wetland shrub with dense colonial habitat, fragrant white spikes in summer, to 6'. distribution/range:
Hardy to zone 4, even Tampico, but not drought tolerant! We had 80% mortality in the drought of 2012. Rabbit chow.

CORNACEAE (Berchtold & J. Presl.) Dumortier 1829 DOGWOOD FAMILY See dicots.doc.

DIOSCOREACEAE R. Brown 1810 **YAM FAMILY**

DIOSCOREA Linnaeus 1753 **YAM** *Dioscoreaceae Dioscorea* (dee-os-KO-ree-a) after Pedanios *Dioscorides*, 1st century Greek physician & herbalist, ca 40-90, author of *De Materia Medica*. Sometimes seen as Discorides. A genus of 575-850 species of tender vines of tropical & warm temperate regions. Several species are cultivated for their edible tubers or yams. The sweet potato is *Ipomoea batatas*.

Dioscorea villosa Linnaeus WILD YAM, aka COMMON WILD YAM, fac-
Habitat: Wet savannas & mesic woodland edges. distribution/range:
Culture: Cold moist stratify 60 days (Wade). Dormant seed or dry storage 70º (180 days) & moist cold stratify. 44,800 (pm02); 151,200 seeds per pound.

EBENACEAE Gürcke 1891 **EBONY FAMILY** A family of 2 genera & 500-600 species of trees & shrubs, mostly of tropical & subtropical regions.

DIOSPYROS Linnaeus 1753 **PERSIMMON, DATE-PLUM** *Diospyros* Diospýros, 'fruit of the gods, divine pear', the persimmon, New Latin, from Latin, a plant, probably gromwell, from Greek, from διός, *dios*, of Zeus (?), or Latin *Dijovis*, of Jupiter, & πυρός, *pyros,* grain, wheat, perhaps more appropriately from Latin *pyrum, pirum* pear. Gray (1888) has this as Διός, πυρός, Jove's grain. For what reason would anyone associate a juicy, fleshy persimmon with a dry kernel of wheat, however noble? I vote for the juicy, succulent pear, early & often. Ponder *Deus, Zeus (*pronounced *dzeus* & *zdeus), Dijovis, Diovis, Theos, Jove (Jovis), Yahweh, Jesus, & Yashua*. Genus of 500-600 species of trees & shrubs mostly native to tropical & subtropical regions. The genus includes the tropical woods known as EBONY.

Diospyros virginiana Linnaeus * CT, NY PERSIMMON, aka AMERICAN EBONY, AMERICAN PERSIMMON, *BARA-BARA,* BOA-WOOD, BUTTERWOOD, COMMON PERSIMMON, EASTERN PERSIMMON, FLORIDA PERSIMMON, PERSIMON, POSSUMWOOD, SEEDED PLUM, SIMMON, WHITE EBONY (*virginianus -a –um* pertaining to, of, or from Virginia, USA, Virginian.) The common name persimmon is from an Algonquian Indian name for the fruit.

Habitat: Persimmon grows in a range of soils & moisture regimes. Dry woods, rich bottomland woods, edges of fields, fencerows, roadsides, & clearings. Grows over a variety of conditions from dry, sterile, sandy woodlands to river bottoms to rocky hillsides; terraces of large streams & river bottoms with clays & heavy loam. In Missouri, it occurs in rocky or dry open woods, limestone glades, prairies, thickets, abandoned fields, & along roadsides (Steyermark). In the southeast USA, dry woods, sandhills, disturbed places, floodplain & mesic forests, fencerows; common (w12). In its range, one of the first invaders in old fields, abandoned & denuded cropland, & common on roadsides & fencerows. Commonly seen in thickets in open fields & pastures. distribution/range: Native to eastern North America, from New York & southern Connecticut, westward through southern Ohio, Indiana, & Illinois to Missouri & southeastern Kansas & Texas. Absent in the northern ⅗ of Illinois, north to Hancock, McDonough, Fulton, & Peoria cos.

Culture: Propagation by seed, grafting, or root cutting. Cold moist stratification required (usda). "Propagation is by seed stratified at 41-50º Fahrenheit (5-10º C) for 365 days & sown in the spring. Germination is about 80 percent. Root cuttings 6-8" (15-20 cm) long & ⅓" (0.85 cm) in diameter can also be used provided the ends are sealed with pitch or wax to prevent rot." (Coladonato 1992) "Fruit ripens to bright orange in late September to November. Clean fruit immediately to prevent mold & fermentation. Air-dry seeds & store in sealed, refrigerated containers. Stratify seeds in moist peat for 30-60 days at 36-41ºF. Scarification does not seem to improve germination but clipping the caps can result in higher germination by encouraging radicle emergence. Germinates easily from stratified seeds (?); seedling grow slowly." (lbj) "Fruits collected by hand or flailing it from tree as soon as fruits ripen & run through a macerator to remove the fruit. Stratify seeds in damp sphagnum peat moss for three or four months in 36-40ºF refrigerator, before planting. Refrigerator, greenhouse & lath house for stratifying, planting & growing." (Esquivel 2001) "Persimmon is easily raised from seed, & if planting is to be done with seeds, they should be cleaned & spread out for drying for a day or two & then stratified under moist conditions for 2 to 3 months at 33-40°F (1-4°C). They should be soaked 2 to 3 days before planting. Seeds lose their viability through extremes of heat, cold, or drying. They should be planted in spring or fall in shallow drills in light soils with plenty of humus & covered to a depth of about 13 min (0.5 in)." (Hallsilvics) Growth rate slow to moderate. Seedling vigor high. Vegetative spread rate moderate. Seed spread rate slow. 1,200 (usda) seeds per pound. Commercial availability reports are good on seeds & seedlings, but also note plant is seldom sold commercially.

Selections are budded or grafted. Root cuttings are also used. Bury root cuttings in moist sand over winter & lift when shoot is well developed. This plant may be grafted like other fruit. (lbj) "Root cuttings 6-8 in (15-20 cm) long & 0.3 in (8 mm) in diameter can be used provided the ends are sealed with pitch or wax to prevent rot. Older twigs may be used similarly. They can be buried in sand until ready to plant." (Hallsilvics) The deep taproot & deep, coarse root system makes transplanting difficult.

cultivation: Prefers moist, well-drained soil (moist, sandy soils), often found growing in a range of soils, sandy, infertile soils, pH adaptable, full sun. Easily grown in average, dry to medium, well-drained soils in full sun to part shade. Tolerates hot, dry, poor soils & various city conditions. Very tolerant of shade. Drought tolerant. Promptly remove root suckers unless naturalized effect is desired. Female trees need a male pollinator in order to set fruit. Tolerant of coarse, medium, & fine textured soils. Anaerobic tolerance none. $CaCO_3$ tolerance none. Drought tolerance

deep taproot, minimum root depth 36". Bark one of the most distinctive features of species, mature bark has a deep, blocky pattern, dark gray or brown, almost black at times, thick & blocky, looks much like alligator hide, similar in appearance to old *Cornus florida* bark, but more dramatic. Twigs slender, glabrous or with gray pubescence, self pruning. Wood is close grained & hard, sapwood light brown. Leaves alternate, simple, deciduous, 2-6" long, ovate to elliptical or oblong, dark, glossy green, leathery, pubescent & lighter underside (the latter especially on younger leaves), fall color yellow to red (purplish-red), variable. Flowers dioecious, male & female flowers on separate trees, on current years growth when leaves are half grown, 4-merous, staminate flowers in 2-3-flowered clusters (cymes), tubular, 8-13 mm long, greenish yellow, blooming early spring, pistillate flowers solitary, sessile or short stalked, bell-shaped, ca. 2 cm long, with 4-5 thick, recurved lobes, corolla fragrant, flowers not ornamentally important. Fruit a persistent, spherical berry, to 4(2-5) cm, only on female trees, 1" to 2" long, greenish to yellowish with highly astringent pulp before ripening, turning red orange to yellow-orange when ripe, with a glaucous bloom, multiple fruit, each with 1-8 flat seeds, ripening in September, edible, attracts wildlife. Two chromosome races of persimmon exist: 2n = 60 & 2n = 90 (Baldwin & Culp 1941)." (Ilpin) key features: "Flowers are occasionally 5-merous. Pistillate flowers solitary, staminate flowers cymose (Spongberg 1977)." (in Ilpin) Sweet edible fruits, which are bitterly astringent when not fully ripe. No terminal buds, lateral buds are small & black. "Seedlings & fire sprouts are superficially very similar to *Nyssa sylvatica*, but can be separated in the following ways: bundle scar 1 per bud scar, narrowly crescent-shaped (vs. *Nyssa* with 3 distinct, circular, bundle scars arranged in a broad V pattern), leaves never with teeth (vs. *Nyssa* leaves sometimes with a few irregular teeth), leaves glabrate to tomentose with curly hairs (vs. glabrous or with a few straight, forward-pointing hairs), leaves with sessile to short-stipitate glands on upper surface of midrib & outer petiole, later becoming necrotic spots (vs. leaves without glands)." (w10) Easy to identify in winter because of its distinctive thick, dark gray bark that is broken into rectangular blocks.

Comments: status: Special concern in Connecticut. Threatened in New York. phenology: Blooms 5-6. Fruits ripen in September & may persist into winter. Over its range flowering from March to June & fruiting from September to November. C3. Persimmon is adaptable to varying pH & soil moisture regimes & is usually free of disease or insect problems. Landscape uses include planting for attractive foliage, for fall color, good park tree, for fruit, to attract wildlife. It is also chosen for its hardiness, adaptability to a range of soils & climates, & relative immunity to disease & insects. The deep taproot provides good erosion control, & because of the deep root system, successful under-planting is possible. A male & a female tree are needed for fruit production. Males grow to a greater size than female trees. Persimmon is considered a weed in managed timbers & its thickets a nuisance in open fields & pastures. Considered well adapted to fire, but it can be controlled by prescribed burning, however it is known to decrease with fire exclusion. Persimmon will sprout from the stump or develop from root suckers. Commonly sprouts from the root collar after fire or cutting. "Occasionally individuals produce both staminate & pistillate flowers. Perfect flowers are rarely formed. Seedless persimmons are sometimes formed through parthenocarpy (Spongberg 1979).

Fruit production starts at about age 10, with peak years from 25-50. Good crops are borne every 2 years.

Associates: Pollinated by bees. The flowers produce a significant crop of nectar for honey production. Nectar source for *Actias luna*, Luna Moth. Deer eat fruit, buds, twigs, & foliage. Species is an important fall & winter food for deer. Terrestrial furbearers (esp. red foxes & raccoons) eat fruit, buds, & foliage. Small mammals eat the fruit, including squirrel, fox, skunk, deer, bear (not so small), coyote, raccoon, & opossum. Possums eat fruit & disperse the seeds. Upland game birds eat fruit, buds, & foliage. Songbirds eat fruit. Fruit eating birds include quail, wild turkey, cedar waxwing, & catbird. Hogs relish the fruit. Seeds are dispersed by birds, animals, & floodwaters in bottomlands. Subject to leaf spot, difficult to transplant, suckers, leaf rollers, & *Tetranychus urticae* TWOSPOTTED SPIDERMITE. May be defoliated in summer by *Seiarctica echo* FALL WEBWORM & *Citheronia regalis* HICKORY HORNED DEVIL. *Agrilus fuscipennis,* a bark & phloem borer infests persimmon & *Sannina uroceriformis* PERSIMMON BORER, damages nursery stock by tunneling in the stems & taproots of young trees. *Oncideres cingulata,* the twig girdler slows growth by cutting off smaller branches. The wood of dying & dead trees is often riddled by *Xylobiops basilaris* FALSE POWDERPOST BEETLE. *Cephalosporium diospyri* causes persimmon wilt.

ethnobotany*:* PERSIMMON is well known for its sweet, edible fruits, with a somewhat date-like flavor that are highly astringent when not fully ripe. Consider the Three Stooges & the PUCKERLESS PERSIMMON in the episode *Some More of Samoa*. The 'pucker power' is from the high tannic content. Native Americans ate the fruit fresh, made into persimmon bread, or dried. Fruits may be used to make puddings, pies, cookies, cakes, custard, sherbet, syrup, &

Persimmon is in the same genus as the many species that go by the name EBONY. The wood is hard, smooth, shock resistant, & even textured, a favored wood for golf driver heads & textile shuttles; also used for turnery, billiard cues, shoe lasts, plane stocks, & low-grade lumber. Most of the commercially used wood is sapwood. The heartwood has been used for veneer & other specialty items. It is one of the heaviest & hardest woods in eastern North America, & contains chemicals toxic to termites. (w07, Carter et al 1978) So, go wack a termite with your favorite wood.

VHFS: Botanical varieties have been proposed, but they are generally not fully recognized.

Cultivars or varieties have been selected for fruit color, taste, size, early maturation, & seedlessness. 'Meader' - The most commonly available cultivar, popular for its extreme hardiness & ability to fruit without a pollinator. Reaches 30'-40' tall, serves as a good ornamental plant with handsome fall foliage. Other common fruiting varieties include 'John Rick', 'Early Golden', 'Garrettson', & 'Killen'.

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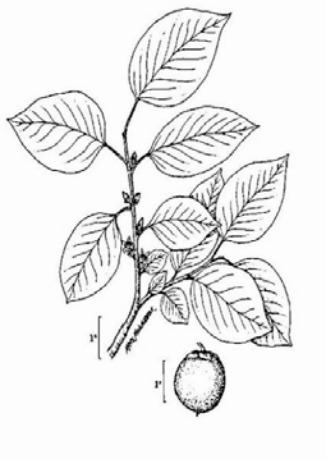


ELAEAGANACEAE AL de Jussieu 1789 **OLEASTER FAMILY**

ELAEAGNUS Linnaeus 1753 SILVERBERRY, OLEASTER, RUSSIAN-OLIVE A genus of 20-45 species, shrubs & small trees, primarily of Asia, some North America spp.

Elaeagnus umbellata Thunberg var ***parvifolia*** (Royle) Schneider AUTUMN-OLIVE, aka SPRING SILVERBERRY, Habitat: Forests & woodlands, spread by birds; distribution/range: Native of Japan & China.

"The rapidity of its increase may be judged by its treatment in Strausbaugh & Core (1978) as not definitely naturalized in WV; Harmon, Ford-Werntz, & Grafton (2006) map it for every county of WV." (w12b) add to bibliography

Elaeagnus umbellata

Photo courtesy of James Hieronymus Alwill IV.

SHEPHERDIA Nuttall *Elaeaganaceae*

Shepherdia canadensis (Linnaeus) Nuttall *IL, IN, ME, PA BUFFALOBERRY, aka CANADA BUFFALO BERRY, RUSSETT BUFFALOBERRY, RUSSET RED BERRY, SOAPBERRY, ((kan-a-DEN-sis) of Canada or NE USA.)
Habitat: Dry rocky banks. distribution/range:
Culture: Seeds cannot be dried. 20-30 minutes sulfuric acid scarification, followed by 60-90 days COLD MOIST STRATIFICATION or dormant seed in cold frame.

asexual propagation: Softwood cuttings. Growth rate rapid. Seedling vigor medium. Vegetative spread rate rapid.

cultivation: Coarse to moderately fine soils. Neutral soils, some acid & base tolerance. Tolerant of coarse & medium textured soils. Does well in clay soils. Anaerobic tolerance low. CaCO3 tolerance high. Drought tolerance high. Fertility requirement low. Salinity tolerance none. Shade tolerance intermediate. pH 5.3-8.0. Hardy to zone 2.
Description: Native shrub, 3-6(12'), leaves dense growing, leaves upper deep green lower surface rusty; flowers with cream to yellow; followed by bright red or yellow berry-like or drupe-like fruit along branches in June.
Comments: status: Endangered in Illinois, Maine & Pennsylvania. Extirpated in Indiana. phenology; Blooms 5-7. C3. Cold-hardy, drought tolerant.
Associates: Valuable for wildlife food & cover, provides some food & cover for upland birds. Nitrogen fixing. "The roots have bacteria-containing nodules that are capable of fixing free nitrogen from the atmosphere (Soper & Heimburger 1982)." (Ilpin)
VHFS: [*Elaeagnus canadensis* (L) A Nels; *Lepargyrea canadensis* (L) Greene]

ERICACEAE AL Jussieu 1789 **HEATH FAMILY** About 107-124 genera & 3400-4100 species of primarily shrubs, small trees, & subshrubs, nearly cosmopolitan,

ANDROMEDA Linnaeus 1753 **BOG-ROSEMARY, ANDROMEDA** *Ericaceae* (an-DROM-e-da) After Andromeda of Greek mythology, Ethiopian princess (daughter of Cepheus) fastened to a rock for a sea monster to devour but rescued by Perseus, from Latin, from Greek. 1-2 species of low evergreen boreal or arctic shrubs with revolute coriaceous leaves & drooping white or pinkish flowers in terminal umbels.

Seeds mature late fall, collect when capsules turn dark brown & start to crack. Germinate as for *Rhododendron.* If there are no seedlings in 21 days, place the flat in a plastic bag and cold moist stratify for 60 days. A seeds will germinate within 4 weeks sown at 70ºF or B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF, H seeds require light to germinate, and moss germination: seed germinates best in the presence of both light & high atmospheric moisture as would be found on a damp, mossy substrate in the wild. (cu02)

Winter cuttings from 2-3" top growth, wound, treat with 3000 ppm IBA, cover with Remay garden blanket root by spring.

Andromeda glaucophylla Link. BOG ROSEMARY (*glaucophyllus -a -um* (glow-ko-FIL-lus) glaucous-leafed)
Habitat: Bogs & wet shores, acid bogs, sp needs moist acid soil. distribution/range:
Description: Low growing, evergreen, narrow blue green leaves, small bell-like flowers. key features: "Species has

ARCTOSTAPHYLOS Adanson 1760 **BEARBERRY** *Ericaceae* *Arctostaphylos* (ark-to-STA-fil-os) bear grapes, from Greek αρκτος- *arctos*, bear; Latin: the bear constellations, the north, -o-, & σταφυλη, *staphyle*, a bunch of grapes, & *–us*, Latinizing suffix. It is said that bears love to eat the fruit. The Greek equivalent of Latin *uva-ursi.* A genus of about 50-60 species of chiefly North American shrubs, woody vines, & small trees, with alternate evergreen leaves, nodding flowers, & drupaceous fruits. A richly diverse genus, most species in western North America, particularly the central California coast, with 1(2) species circumboreal.

Arctostaphylos uva-ursi (Linnaeus) Spreng. BEARBERRY, aka BEAR'S-GRAPE, *BOUSSEROLE,* CROWBERRY, FOXBERRY, HOG CRANBERRY, MEALBERRY, *RAISIN D'OURS*, *Kinnikinnick* (Algonquin for mixture) *Saga'kominagunj,* berry with spikes (The specific epitaph is redundant; *uva-ursi* (OO-va-UR-see) from Latin *ūva* grape, uvula, etc, & *ursa* bear, especially she-bear, BEAR'S GRAPES, BEAR BERRY or BEAR BILBERRY, *Arctostaphylos*.) *Arctostaphylos uva-ursi* is a botanical tautonym, translated as bear's grape & grape of the bear.
Habitat: Dry sandy & rocky soil & exposed rock & sands, in our area near Lake Michigan, prefers sand or rocky soils. Dry, rocky, or sandy slopes. distribution/range: North America, Guatemala, & Eurasia; northern states & southward in mountains; the only species known from outside North America. In Illinois Cook, Lake, Ogle, Peoria, Tazewell, & Winnebago cos.
Culture: ? Needs full sun.
Description: Low, mat forming, trailing glossy-leafed evergreen, native shrub; leaves maroon to bronze from frost through winter, flowers numerous, white to pinkish urn-shaped, 5-merous, that develop into red berries. N 2n = 26, 52.
Comments: status: phenology: Blooms 4,5,6. Red pea-sized berries available in July to October & persist through winter. C3. The low growth, evergreen leaves, & red berries are useful in the landscape.

"*Most populations lack burls & are killed by fire* (emphasis added); throughout the range in North America are occasional populations or individuals that have small, sometimes epicormic burls. This has been noted in California, parts of Canada, & New York. With more observations this distribution may become clearer." (fna) Regrowth would depend on a persistent soil seed bank. "There are a few plants on top of the high dune on Sugar River north of Yale Bridge. We have also see in it at Pine Rock in Ogle Co growing sparingly under a lone Jack pine tree." (ewf55)
Associates: Bears, grouse, & wild turkeys relish berries. Ectomycorrhizal. May fix nitrogen, reported to form nodules.

ethnobotany: Berries used for food by Ojibwa (den28), but are mealy & bland. Used as medicinal plant by Ojibwa for headaches (den28). Tea used by Cheyenne for back sprains. Leaves have mild & slightly antiseptic diuretic properties (Readers Digest 1986). Also used for utility by Ojibwa (den28). Leaves high in tannin & can be used for tanning leather (Readers Digest 1986). Used for charm & for smoking material by Ojibwa (den28). Found archaeologically at Juntenen site & found growing there.

Leaves contain arbutin, an astringent thought to have antiseptic effect on urinary tract (kidney & bladder infections).
VHFS: The variety in Illinois is variety *coactillis* Fern & JF Macbr. Species was once placed in *Arbutus*.

CHAMAEDAPHNE Moench 1794 **LEATHERLEAF, CASSANDRA** *Ericaceae*

Chamaedaphne calyculata (Linnaeus) Moench. **Chamaedaphne calyculata** var **angustifolia** (Aiton) Rehd. LEATHER LEAF, aka CASSANDRA, (*calyculatus -a -um* calyx-like, with bracts resembling an outer calyx.)
Habitat: Swamps & boggy meadows. One of few shrubs in southern bogs, north in acid woods. Hardy to zone 1. distribution/range:
Culture: Softwood cuttings.
Description: Low evergreen shrub of bogs; leaves glossy-green, turning bronze in winter; flowers small bell-like, on underside of twigs
Associates: ethnobotany: Leaves available most of the year. Used by the Ojibwa for beverage (dried for future use) (sm32). Leaves used as medicinal plant by Pottawatomie (sm33).

GAULTHERIA Kalm ex Linnaeus 1754 **WINTERGREEN, TEABERRY** *Ericaceae* (gawl-THE-ree-a) After Dr. Gaulthier (ca 1708-1758) Canadian botanist & physician

Gaultheria hispidula (Linnaeus) Bigelow CREEPING SNOWBERRY, aka MOXIE PLUM, MOXIE, (*hispidulus -a -um* somewhat bristly, somewhat rough, with small bristles.)
Habitat: Bogs in the south & in mossy (often coniferous) woods in the north. Hardy to zone 2. distribution/range:
Description: Very low tiny leaved evergreen, growing in wet moss soils in deep shade, small white styrofoam-like berries, requires acid soil, very little summer sun.

Habitat: Thin sandy woods & clearings, acidic & xeric. Hardy to zone 2. Distribution / Range:
Description: Stoloniferous, evergreen, native ground cover; leaves glossy, winter color purple-maroon, crushed leaves are fragrant; flowers small bell-like, followed by bright red berries that may take until the second spring to ripen fully in northern Wisconsin.
Comments: status: phenology: Blooms 6-8. C3.
Associates: ethnobotany: Leaves available spring to fall, berries ripen in fall but stay on all winter & are larger in early spring. Used by Ojibwa & Pottawatomie for beverage (sm32, 33) also used for flavoring & medicine; berries also used for food by Ojibwa & Iroquois (sm32, Waugh 1916). Used as medicinal plant by Ojibwa, Menominee, & Pottawatomie (sm23, 32, 33). Leave tea (source of methyl salicylate) Ojibwa food (den28). Leaves aromatic & astringent.

GAYLUSSACIA Kunth 1819 **HUCKLEBERRY** *Gaylussacia* New Latin, from J. L *Gay-Lussac* & New Latin -ia. A genus of about 50 shrubs of North & South America, centered in South America.

Gaylussacia baccata (Wangenheim) K. Koch. BLACK HUCKLEBERRY, aka HUCKLEBERRY, (*baccatus -a -um* in the form of a berry, berry-like, having berries, with pulpy fruit, from Latin *baca, bacae; bacca, baccae*, describing fruits with fleshy or pulpy coats.)
Habitat: Rocky woods, swamps, & bogs. Hardy to zone 4. distribution/range:
Description: Low colonial shrub, bright red fall color, small bell flowers followed by blue or black sweet berries, requires acid soil does best in light shade.
"We have found this in Sugar River sand area in Rockton & Shirland Townships, & on the sandy plain west of Yale bridge in Laona Township." (ewf55)
Associates: ethnobotany: Used as food by Ojibwa & Iroquois (Reagan 1928, Waugh 1928). Among the richest of fruits (Hinsdale 1932).

KALMIA Linnaeus 1753 **MOUNTAIN LAUREL, SAND MYRTLE, WICKY, SHEEPKILL** *Ericaceae* (KAL-mee-a) After Pehr Kalm (1715-1779) Finnish student of Linnaeus. Evergreen shrubs.

Kalmia angustifolia Linnaeus SHEEP LAUREL, aka NORTHERN SHEEPKILL, (*angustifolius -a -um* (ang-gust-i-FO-lee-us) narrow -leaved)
Habitat: Acid sandy soils. Hardy to zone 3. distribution/range:
Description: Low growing shrub; evergreen foliage, gray green narrow leaves with older leaves red fall color; small pink flowers in spring. (rrn97)
Associates: ethnobotany: Used as medicinal plant by Montagnais (Tantaquidgean 1932).

LEDUM Linnaeus **LABRADOR TEA** *Ericaceae* (LAY-dum) from the Greek *ledon* name for *Cistus*, rockrose. Evergreen shrubs.

Ledum groenlandicum Oeder. BOG ROSEMARY, aka LABRADOR TEA, BOG LABRADOR TEA, *Muckig'obug,* swamp leaf *groenlandicus -a -um* (grurn-LAND-i-kus) of Greenland)
Habitat: Bogs & damp thickets; wet acid forests & bogs. distribution/range:
Culture: Softwood cuttings. Hardy to zone 1.
Description: Rhododendron-like evergreen native shrub, to 2'; deep green summer leaves with fuzzy white undersides, winter upper leave surface purplish, lower rusty; clusters of delicate white flowers in June.
Associates: ethnobotany: Leaves available spring to autumn. Used by Ojibwa & Pottawatomie for beverage (sm32, 33). Also used for dye & medicine. Leaves used as medicinal plant by Ojibwa & Pottawatomie (den28, sm33). Ojibwa medicine for ulcers (den28). Leaves expectorant & tonic. Said to have been used instead of tea leaves during the Revolution (den28). Used for dye by Pottawatomie (sm33).

MONOTROPA Linnaeus 1753 **INDIAN PIPES, PINESAP** *Ericaceae Monotropa* New Latin, from Greek *monotropē*, feminine of *monotropos* living alone, from *mon-* & *tropos* turn, way, from *trepein* to turn. An herbaceous monotypic genus of North America, South America, & east Asia. *Monotropa*, *Hypopitys*, & *Monotropsis* are sometimes placed in the *Monotropaceae.*

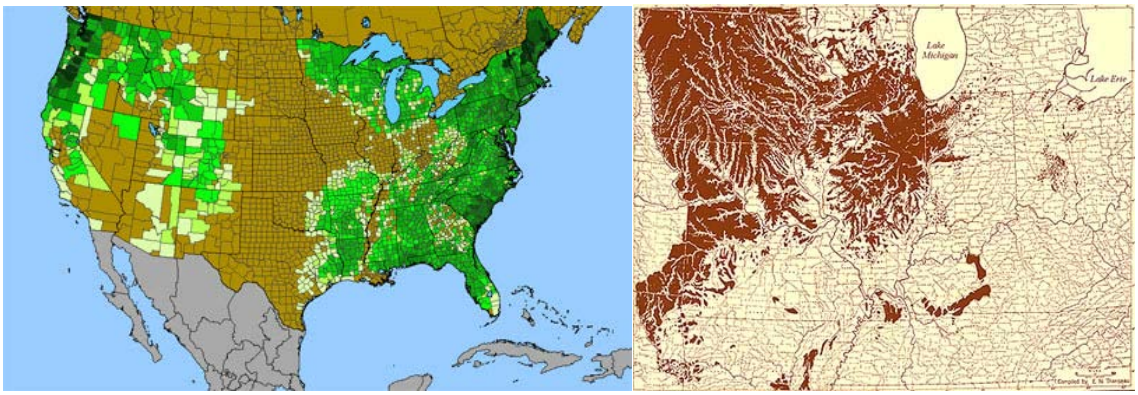
Monotropa uniflora Linnaeus INDIAN PIPE, aka BIRD'S NEST, (*uniflorus -a -um* single-flowered, with one flower) stem l-flowered; flower nodding at first, at length erect; scales of the stem approximate, whole plant ivory-white at first;

RHODODENDRON Linnaeus 1753 **RHODODENDRON, AZALEA** *Ericaceae* A genus of about 850 species of trees & shrubs of north temperate regions, with the greatest diversity in Himalayan Asia.

☠ All plant parts contain the toxin grayanotoxin, including the nectar & pollen. Symptoms include heart problems, vomiting, dizziness, & extreme weakness. Honey made from rhododendrons may also be toxic. "What, in fact, can have been her (Nature's) motive, except to render mankind a little more cautious & somewhat less greedy?" (Pliny)

VACCINIUM Linnaeus 1753 **BLUEBERRY, CRANBERRY, BILBERRY** *Ericaceae* (va-KEEN-ee-num) Latin name applied to either *V myrtillus* or a hyacinth. Deciduous & evergreen shrubs.

BLUEBERRY flowers are a nectar source for the Pipevine Swallowtail, *Battus philenor*.



Density gradient of native species for *Vaccinium* within the US (data 2011). Darkest green (11 spp. Hancock Co, ME; Oxford Co, ME; Coos Co, NH; Carroll Co, NH; Grafton Co, NH; Chittenden Co, VT; Lamoille Co, VT) indicates the highest species concentration. ©BONAP Map 2 Edgar Nelson Transeau's map of the Prairie Peninsula (Transeau 1935).

In Illinois, the distribution of *Vaccinium* is inversely correlated with the Prairie Peninsula.

Vaccinium angustifolium Aiton LOW-BUSH BLUEBERRY, aka BLUEBERRY, LOW SWEET BLUEBERRY, NORTHERN LOWBUSH BLUEBERRY, SUGARBERRY, SWEET HURTS, *Min'aga'wunj* (*angustifolius -a -um* narrow leaved, from Latin *angustus*, adjective, drawn together; narrow, *-i-*, connective vowel used by botanical Latin, & *folius*, adjective, *folium,* leaf.)

Habitat: Dry, rocky or sandy soil, burns, clearings, dry open barrens, & peats, sandy open woods, slopes of dunes, bogs.
distribution/range: Confined to n. 1/3 of Illinois.
Culture: Hardy to zone 2.
Description: Low plants to 1.5', forming great mats in open sun, sandy soil; leaves fire red fall color flowers; white, small bell like, followed by small blue fruit, needs acid soil.
Blooms 5-6. C3.

"This grows sparingly in a decadent bog in Rockton Township. Here there are two forms, a smooth-leaved form & a form with slightly pubescent leaves that may be considered var *hypolasium* Fern. The bushes are, in contrast to the next, scraggly, much branched, & do not exceed a foot in height. With them grow huckleberry, aronia, dwarf birch, & scrub willows. (*V. pennsylvanicum* Lam.)" (ewf55)

Associates: ethnobotany: Berries available in July to August, but earlier than *V corymbosum*. Used as medicinal beverage by Ojibwa (sm32). Ojibwa, Menominee & Pottawatomie, & Iroquois used berry for food (sm23, 32, 33, Waugh 1916). Berries were dried for winter use. This & *V corymbosum* are the most useful blueberries (Newberry 1887). Most important blueberry in the upper Great Lakes region & one of the most important berries in season & dried for winter use.

Large quantities were gathered by the Ojibwa (Gilmore 1933). Much gathered by Algonkins in August & September, dried & stored in time of need (Blair 1911). Among the richest of fruits (Hinsdale 1932). Berries born in terminal clusters, hence easily gathered in quantity.

The BILBERRY group of *Vaccinium* is not mentioned in ethnobotanical sources, even though they are sweet & quite edible. Probably little used as berries are in leaf axils & not easily gathered.

Ojibwa medicine for "craziness" (den28). If that's true, send a truckload to the ACOE.

VHFS: (Includes var *laevifolium* House) Also referred to as *Oxycoccus palustris*????.

Description: Low plants to 1.5', forming great mats, often grows in clumps, leaves fire red fall color, flowers small, white, bell-like; followed by very tasty small blue fruit.
Comments: status: phenology: Blooms May to June.

"This grows sparingly in a thicket at the edge of the bog in Rockton Township where we found *V. angustifolium*. It is about 5 feet tall & is easily mistaken for a shrub willow with which it grows." (ewf55)
Associates: ethnobotany: Used for food by Iroquois (Waugh 1916).

Vaccinium macrocarpon Aiton. AMERICAN CRANBERRY, aka LARGE CRANBERRY, *A'nibimin* (Ojibwa) (*macrocarpus -a -um, macrocarpon* (mak-ro-KAR-pus) large fruit)
Habitat: Open bogs, swamps, & wet shores, bogs. distribution/range: In Illinois, Cook, Lake, McHenry, & Will cos. Sow at 18-22ºC (64-71ºF) for 2-4 wks, move to +2 to +4ºC (34-39ºF) for 4-6 wks, move to 5-12ºC (41-53ºF) for germination (tchn).
Description: Stronger growing evergreen ground cover, larger deep red fruit. Hardy to zone 2. distribution/range: Blooms June to August.
Associates: ethnobotany: Berries available in September to November & through winter. Used for food by Ojibwa, Menominee, Mascouten, & Iroquois (Reagan 1928, Skinner 1921, Waugh 1916). Dried & stored. Ojibwa food (den28)
VHFS: Also referred to as *Oxycoccus macrocarpus* (Aiton).

Vaccinium myrtilloides Michaux CANADA BLUEBERRY, aka SOUR-TOP, SOUR-TOP BLUEBERRY, VELVET BLUEBERRY, (MUR-ti-lus similar to *V mytillus,* BILBERRY, WHORTLEBERRY of Europe.)
Habitat: Dry plains, clearings, moist woods & swamps. Tamarack bogs, sandy or rocky slopes. distribution/range: Lake, LaSalle, McHenry, Ogle, & Winnebago cos.
Description: Similar to *V. angustifolium*, usually in some shade. Velvety leaves & fruit ripening later than LOWBUSH BLUEBERRY. "Species has densely pubescent branchlets; sour berries." (Ilpin) Hardy to zone 2.
Comments: status: phenology: Blooms May to June. C3.

"This grows in a boggy place in northern Shirland Township over an area of an acre where it is in the open & also in the edge of woods. It is accompanied by *Ilex*, *Alnus*, *Rubus hispidus*, *Betula lutea*, etc. In contrast to the preceding it is a robust plant with ascending branches & is up to 2 feet tall. It is very hairy & resembles the Castle Rock plants. (*V. myrtilloides* Michx) (ewf55, as *V canadense* Kalm)
Associates: ethnobotany: Used for food by Ojibwa, Pottawatomie, & Iroquois (Reagan 1928, sm33, Parker 1910) dried for winters. "... Important & valued article of food among the northern Indians." Root used as medicinal plant by Pottawatomie (sm33).

Vaccinium oxycoccos Linnaeus SMALL CRANBERRY (*oxycoccos* (oks-ee-KOK-us) from Greek *oxys* acid & *kokkos* a round berry)
Habitat: Cold sphagnum bogs, boggy or peaty soils. distribution/range:
Best on very moist & acid soils. Hardy to zone 2.
Description: "Dainty" evergreen ground cover; tiny leaves; maroon fall color; flowers small, pink, bell-like, followed by small speckled cranberries.
Associates: ethnobotany: Berries available in August to September & through winter. Used as medicinal beverage by Ojibwa (sm32). Ojibwa (important food), Menominee, Pottawatomie & Iroquois used berry as food (sm23, 32, 33, Waugh 1916).

Vaccinium vacillans Kalm ex Torrey DRYLAND BLUEBERRY, aka BLUE RIDGE BLUEBERRY, EARLY LOW-BUSH BLUEBERRY, HILLSIDE BLUEBERRY, LATE LOW BLUEBERRY,
Habitat: Dry open woods, thickets, & clearings in dry places. Sandstone cliffs, open sandy woods. distribution/range: Occasional in the south ½ of Illinois, becoming rare northward.
Comments: status: phenology: Blooms April-May.
Associates: ethnobotany: Berries available in August to September. Used for food by Ojibwa (sm32).
VHFS: Mohlenbrock lists this as *V pallidum* Aiton HIGHBUSH BLUEBERRY, Special Concern in Wisconsin. [*V. vacillans* Torr.]

"I take the part of the trees as against all their enemies." -J.R.R. Tolkien

FAGACEAE Dumortier 1829 **BEECH FAMILY** About 8 genera & 620-1050 species of trees & shrubs, mostly of the

Formerly a dominant tree in much of eastern North America. Castanea has the ability to grow indeterminably or to have -3 spurts of determinate growth under favorable conditions. Blight can infect seed coats of nuts, but not embryos.

Disease resistant trees are self-sterile. 1-3 nuts ripen in the fall, in a spiny fruit. Store seeds in slightly-dampened vermiculite in a ziplock in the refrigerator over the winter. The hydrophilic seeds will rot if too moist. Code B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF, and * seeds are hydrophilic, intolerant of dry storage. Place nuts in individual pots in spring & protect from rodents. Germination epigeal, seedling growth quick. (cu02)

Castanea dentata (Marsh.) Borkh. AMERICAN CHESTNUT, aka CHESTNUT,
Habitat: Usually found in acid upland soils, rocky areas, & sandy loose soils, well drained gravelly or rocky soil, glacial drift, & hillsides. Optimum pH 5.5. Hardy to zone 3. distribution/range:
Description Now virtually extinct, coarse-branched, round-headed, native tree, before the blight to 70-100'; showy white flowers in summer; clusters of sweet nuts in bristly husks. key features: "Pistillate flowers born on the base of the staminate catkins or axillary; large spiny fruits; coarsely & sharply serrate leaves." (Ilpin)
Comments: status: phenology: Blooms 6-7. C3. Research in NE USA may indicate recovery from disease.
Associates: Terrestrial furbearers & small mammals (esp eastern chipmunks) eat nuts. Deer eat twigs & foliage. Seeds are dispersed by birds & mammals. Nearly extinct.

ethnobotany: Nuts were available in October to November. Good crop most years. Nuts used as food by Iroquois (Waugh 1916). Nuts are known from numerous archaeological sites

FAGUS Linnaeus 1753 **BEECH** *Fagaceae Fagus* (FAH-gus) a beech tree, from Pliny, from the classic Latin *fagus,* beech tree, from Greek φηγος, *phēgos*, from Doric φαγὸς, *phagos*, for a kind of oak bearing an esculent acorn. A genus of about 10 species of deciduous trees of temperate areas of the Northern Hemisphere.

Fagus grandifolia Ehrh BEECH, aka AMERICAN BEECH, varieties are variously known as WHITE, GRAY, or RED BEECH.
Habitat: Deep rich well drained loam, rich woods, sometimes in swamps, near streams, wet lowlands. Hardy to zone 3.
Description: Large climax, native forest tree, up to 100'. distribution/range:
shiny green leaves & copper fall color, winter texture very fine; smooth gray bark, even in age; edible nut in bristly burs.
key features: " Staminate flowers in heads, pistillate flowers are paired; smooth, gray bark; long, pointed winter buds." (Ilpin)
Comments: status: phenology: Blooms 4-5. C3.
Associates: Waterfowl, songbirds (esp tufted titmice) eat nuts. Upland gamebirds eat nuts & buds. Wood ducks & tufted titmice eat nuts. Terrestrial furbearers (esp. squirrels), aquatic furbearers, small mammals (esp. eastern chipmunks) eat nuts. Deer eat foliage, twigs, & nuts. Hogs eat nuts.

Wind pollinated, may be a minor contribution to hay fever.

ethnobotany: Nuts, leaves, bark, & wood are used. Nuts available in October to November (primarily obtained by collecting chipmunk & deer mouse stores in winter). Good crop every 2-3 years. Used for food by Ojibwa, Menominee, Pottawatomie, & Iroquois (sm23, 32, 33; Waugh 1916). Leaves used as medicinal plant by Ojibwa, Menominee, & Pottawatomie (Gilmore 1933, sm23, 33). The Rappahannock steeped bark in saltwater for poison ivy (Readers Digest 1986). Sap has been used to treat tuberculosis. Leaves or bark used in ointments for burns, sores, ulcers, internally for bladder, liver & kidney treatment. Nut oil used internally for worms. Decoction of roots or leaves believed to cure intermittent fevers, dysentery, & diabetes (Readers Digest 1986). Wood used for bowls by Pottawatomie (sm33). Wood used today for flooring, furniture, crates, & tool handles (Readers Digest 1986). Beech was used for the body of wooden carpenters' planes. Seeds are known in archaeological contexts.

☠ Nuts reported to be poisonous to humans & animals in large doses (Readers Digest 1986).

QUERCUS Linnaeus 1753 **OAKS** *Fagaceae Quercus* (KWER-kus) an oak, from the Classical Latin name for the English Oak, *Quercus robor*, from some central European language. Alternately from Greek κερχαλέος, *kerkhaleos*, rough in reference to its rough bark, "*arbor corticis asperi*". Κερχαλέος is cut down to κερχέος, κερχοῦς, *kerkheos, kerkhous*. *Quercus* may be from κερχόεις, κεροῦς, *kerkhoeis, kerous,* from (like κερχαλέος), κέρχω, *kerkho,* or κερχάω, ῶ, *kerkhao,* to render dry or rough. Alternatively, from κάχρυς, *kakhrus,* an acorn, a knob, as Theophrastus reckoned it among the *cachryphora*, the plants that bear acorns; or from κάχρυς, *kakhrus*, changed to κέχρυς, κέρχυς, *kekhrus, kerkhis,* is *Quercus*. A genus of 350-530 species of deciduous & evergreen trees & shrubs of temperate, subtropical, & rarely tropical regions of the Northern Hemisphere. The fruit is a glans.

Of *Quercus* species, Short noted: "The thinner lands are clothed chiefly with oaks of various species, hickories and

polyphemus POLYPHEMUS MOTH, *Anisota virginiensis* PINK-STRIPED OAKWORM MOTH, *Anisota senatori* ORANGE-TIPPED OAKWORM MOTH, *Anisota stigma* SPINY OAKWORM MOTH, *Apatelodes torrefact* SPOTTED APATELODES MOTH, *Calycopis cecrops* RED-BANDED HAIRSTREAKS, *Ceratomia undulosa* WAVED SPHINX MOTH, *Eacles imperialis* IMPERIAL MOTH, *Erynnis briz* SLEEPY DUSKYWING SKIPPER, *Erynnis horatius* HORACE'S DUSKYWING, *Erynnis juvenalis* JUVENAL'S DUSKYWING SKIPPER, *Fixsenia favonius* SOUTHERN HAIRSTREAK, *Haploa clymene* CLYMENE MOTH, *Lagoa crispata* BLACK-WAVED FLANNEL MOTH, *Limenitis arthemis* RED-SPOTTED PURPLE BUTTERFLY, *Paonias excaecata* BLINDED SPHINX MOTH, *Parasa indetermina* STINGING ROSE CATERPILLAR MOTH, *Parrhasius m album* WHITE M HAIRSTREAK BUTTERFLY, *Satyrium calanus* BANDED HAIRSTREAK BUTTERFLY, *Satyrium caryaevorum* HICKORY HAIRSTREAK BUTTERFLY, *Satyrium edwardsii* EDWARDS' HAIRSTREAK BUTTERFLY, *Satyrium favonius* OAK HAIRSTREAK BUTTERFLY. Possible host *Satyrium liparops* STRIPED HAIRSTREAK BUTTERFLY. Adult *Nymphalis antiopa* MOURNING CLOAK BUTTERFLY feed on sap.

Some authors prefer to abbreviate the genus name as *Qu*.

Quercus Culture:

Acorns are perishable & have a short shelf life. Moisture content is critical for germination to occur. WHITE OAK ACORNS must not drop below 30-50% moisture, & BLACK OAKS must not drop below 20-30% moisture content. WHITE OAK acorns have little or no dormancy & will germinate upon falling, with the roots emerging in the fall. WHITE OAK acorns can only be stored dry for a short time. BLACK OAK acorns have embryo dormancy & germinate the spring after fall sowing or after moist cold stratification at 0-5ºC for 30-90 days. The best BLACK OAK germination occurs with cold moist stratification at 33-41ºF for 30-90 days & spring planted. Germination standards for RED/BLACK OAKS are 20/30º C for 14 days. Fall seeding is preferred to spring seeding. White oaks should not be stored, & black oaks stored no longer than 6 months. Fall sowing is preferred. Germination varies with weevil damage. Rodents impact plantings & control is required. Acorns are drilled or broadcast & covered with 0.6 cm of firm soil & mulched in the fall. Germination is epigeal. Best seedlings are produced in moist, well drained, humus filled soils. (yy92, dh87)

The availability & short shelf life of the WHITE OAKS may not allow sample submittal & planting dates as per some job specifications. To insure optimum performance they should be installed as they become available, generally early relative to herbaceous species availability on the same project.

Alternate *Quercus* Culture after Cullina (2002)

Mast years occur every 2-4 years, often 1-2 years after a rainy spring and summer. Late frosts will diminish crops for 1-2 years. Fallen acorns are readily sought by many animals. Collect large, heavy acorns with missing or easily removed caps. Collect at least twice as many as you will need. Acorns with weevil holes may not grow. Pour acorns into a bucket of water and discard the floaters. Soak sound seeds for 1-2 days, drain well, and place in an ample quantity of vermiculite in freezer bags in the refrigerator. WHITE OAK will sprout a root, but the vermiculite should pad the roots. Plant out in spring. Cullina recommends placing red oaks in a warm location in spring to initiate germination in the bag, planting only sound acorns. plant directly in the field or in 3-4" deep container. Germination hypogeal, with 1 or 2 flushes of leaves the 1st year.

Think of the fierce energy concentrated in an acorn! You bury it in the ground, and it explodes into a giant oak! Bury a sheep, and nothing happens but decay. —George Bernard Shaw, The Vegetarian Diet According to Shaw (1918) Hanson, Thor (2015-03-24). The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses, and Pips Conquered the Plant Kingdom and Shaped Human History.

Quercus alba Linnaeus WHITE OAK (*albus -a -um* (AL-bus) from Latin white, *albus*, adjective, particularly a dull rather than a glossy white, or, dead white; pale; bright, a general white.)

Habitat: Open exposures of dry woods, moist woods, wooded slopes, coves & well-drained secondary bottoms.

distribution/range:

Description: Open grown specimens become a wide spreading tree, 50-80'. "Majestic" light grey bark. Deep green leaves with red & purple fall (brown-wine) color. Does not like highly alkaline soil or root disturbance. 64 (jfn04); 144 (aes10) seeds per pound.

cultivation: Optimum pH 5.6? Dry to moist soils of medium fertility. Hardy to zone 3.

"Common. There is a material difference in the leaf cutting in different places. On the hills in Laona Township the leaf is long & narrow, the cutting is nearly to the midrib & the lobes are narrow. In Sugar River bottom west of Shirland the lobes are wider & less deeply cut thus tending to resemble *Q bicolor* -- possibly accounted for by hybridization." (ewf55)

Associates: Good den tree & leaf nest tree.

Quercus alba

Quercus bicolor Willdenow SWAMP WHITE OAK (*bicolor, bicolorus* two colored, bicolored.) Facultative wet +
Habitat: Bottomland woods, edges of swamps, wet flats, streambanks. Floodplain & terrace species. Moist soils that dry out by end of growing season. Does not like high pH soils. Optimum pH 6.0. In nature a wetland tree, but does well in most upland landscape situations. Full to partial sun. Medium fertility. Salt tolerant. Salt tolerance low. Nutrient load tolerance low. Siltation tolerance low. Full sun. "In the Sugar River & Coon Creek bottoms & in Pecatonica River bottom near Shirland. Not seen elsewhere in the Co." (ewf55) Hardy to zone 3. distribution/range:
Culture: Plant fresh seed or keep moist. Refrigerate clean seed in a ziplock bag until planting or starting other treatment (pm09). 96 (jfn04); 128 (aes10); 130 seeds per pound.

Available B&B, bare root & container grown. SWAMP WHITE OAK has a more fibrous root system & more easily transplanted than most oaks that are tap rooted. Great Lakes Nursery says slow grower? Some salt tolerance noted by AES (2010).
Description: Medium deciduous tree 50 to 70', approximating BUR OAK in size, interesting bark; shiny leaves, yellow-orange fall color.
Comments: status: phenology: Flowers May. Great specimen tree, even in mesic soils, rain gardens, wetland restoration. Seed source eastern Iowa.
Associates: Good den tree. Acorns important food for small mammals & deer. Provides habitat for birds, reptiles, & amphibians.

Quercus coccinea Münchhausen SCARLET OAK, aka NORTHERN PIN OAK, (*coccineus -a -um* Latin scarlet, red, deep red, deep carmine red, from Latin *coccineus*, scarlet)
Description: Tall red oak type, 60-70'; distribution/range:
with deeply cut leaves & scarlet to bronze-red fall color. Hardy to zone 4. Optimum pH 7.2. Fast grower, full sun, adaptable.

Quercus ellipsoidalis EJ Hill HILL'S OAK, aka JACK OAK, NORTHERN PIN OAK, (*ellipsoidalis -is -e* ellipsoid, elliptic, elliptical.)
Habitat: Well-drained uplands. distribution/range:

Tolerant of infertile, sandy soils.
Description: Pyramidal tree when young, becoming more open in age, bright red fall color with leaves persisting through most of the winter. Three of our trees have glossy green leaves in spring, while an other from a different source has leaves with a reddish cast.
Comments: status: phenology: A good screen tree, with leaves persisting most of the winter. Ours were planted as 1.5" bag-grown trees, & since 1997, we have mostly resisted the urge to limb them up. The acorns are reported to be biennial, but our three trees mature acorns annually. "Common on Kishwaukee River, less so in prairie groves & on Kent Creek & occasional in Sugar River & Pecatonica River bottoms near Shirland but it does not grow in the upland black oak woods in the Sugar River sand area. Known in Boone, Ogle, & DeKalb cos." (ewf55)
Associates: The nuts are highly sought after by blue jays, with most of them plucked from the tree before they are fully ripe.

ethnobotany: Acorns available autumn. Acorns were ground for making beverage by Menominee (sm23).

Quercus ellipsoidalis

Quercus imbricaria Michaux SHINGLE OAK, aka LAUREL OAK, JACK OAK, (*imbricarius –a -um* (im-bri-KAH-ree-us) covered spirally with broad scales arranged like the tiles of a house, from the Latin *imbrex,* a tile, roofing tile, in *Quercus imbricarius* for the woods use as shingles or roof tiles.)
Habitat: Moist soil along streams or in woods. Occasionally on dry exposed sandstone cliffs. Fencerows. Hardy to zone 4. distribution/range: Known from southeastern Bureau Co.
416 (aes10) seeds per pound.
Description: Pyramidal when young, becoming medium to large (70') with age; leaves reddish in spring, deep green in summer. Rusty, red fall color. Leaves persist much of the winter.

A shrub form was also in the trade. Tolerant of most soils.

Quercus macrocarpa Michaux BURR OAK, aka MOSSY CUP OAK, *Mi'tigo'mic* (Ojibwa) (*macrocarpus, macrocarpon* (mak-ro-KAR-pus) with large fruit.) Facultative(-)
Habitat: Bottomlands, rich woods, & fertile slopes. From dry ridges to bottomland woods. Prairie invader.
distribution/range:
Culture: Overall availability of seed may be limited. Very seasonal. Only fall planting works. Acorns are recalcitrant, they die if moisture levels drop below critical levels. Acorns of the white oak group are not tolerant of storage for more than very brief periods, & must be planted the fall they mature. If moisture levels drop below 20-22%, the acorns die.
64 (aes10); 75; 80 (jfn04) seeds per pound.

USDA (1997) says germination improves with stratification, but this can't be right. The radicals emerge in the fall. Protect from rodents & other small mammals. Grub damage is usually present at or near harvest. Bill Smith of Smith Nursery in Iowa says some grub-damaged acorns will grow.

cultivation: Seedlings develop deep taproot & extensive laterals. Field grown plants can be difficult to transplant. Bag grown or "tree pot" grown plants more easily transplanted. Successful plantings have been made with small bare root seedlings followed by watering. Adaptable to various soil types. Prefers moist soil, drought tolerant. Tolerates moderate dormant season flooding. Nutrient load tolerance low to high. Salt tolerance low, noted by AES (2010). Siltation tolerance low to moderate. Full sun, not shade tolerant. Optimum pH 6.4 (usda 1997, pH not available). Hardy to zone 2.
Description: Native, deciduous tree, wide spreading oak of open, sunny sites, 60-80'; bark deeply furrowed with age; deep green leaves with lower white surface, yellow brown fall color; acorns large, cups heavily fringed;
Comments: status: phenology: Flowers April to May. Planted in shelterbelts & windbreaks. Massive lower limbs on open grown trees. Thick bark imparts some fire resistance to the trunk.

"Common, more so in low than in upland woods except that it is the common oak in prairie groves. The cutting of the leaves suggests crossing with *Q alba* or *Q bicolor*." (ewf55)
Associates: Good den tree. Acorns are eaten by squirrels, wood ducks, deer, rabbits, & mice. Used for cover & nesting sites. In our immediate neighborhood, we have 2 mature bur oaks, with similar-aged offspring up to ¼ mile away in various directions.
Associates: ethnobotany: Acorns available in August & September (later on the ground.) Good crop every two to three years. Gathered in late autumn by Ojibwa & buried for winter or spring (den28). Used as medicinal plant by Ojibwa (sm32). Ojibwa medicinal plant for wounds (den28). Used for dye by Ojibwa (Smith 1933).

Quercus muehlenbergii Engelmann CHINKAPIN OAK, aka CHESTNUT OAK, CHINQUAPIN OAK, YELLOW OAK, (*muehlenbergii*, *Muhlenbergia, muhlenbergii* New Latin, from Gotthilf Heinrich Ernst *Mühlenberg* 1753-1815 American German Lutheran minister & pioneer botanist, born in Trappe, Pennsylvania & educated in Halle Germany, who studied botany & other natural sciences in his spare time, & New Latin *–ia.* He was the first president of Franklin College.) The accepted spelling for *Carex* & *Quercus muehlenbergii,* named for the same individual, has changed.
distribution/range:
96 (aes10) seeds per pound. Fine textured oak, flaky, light tan to gray bark, shiny green leaves. Hardy to zone 3
"Uncommon on Kishwaukee River above New Milford & on Hall Creek at the "dells"." (ewf55)
[*Quercus muhlenbergii* Engelm]

Quercus palustris Muenchhaussen PIN OAK, aka WATER OAK, SWAMP OAK, SPANISH OAK, (*palustris, palustre* (pa-LUS-tris) marsh-living, of swamps, of marshes, or growing in bogs, marsh loving, from Latin *paluster -tris -tre* marshy, boggy) Facultative Wet
Habitat: Moist soil, in floodplains, along streams, edges of swamps & ponds. distribution/range:
Culture: Recalcitrant seeds. Must be maintained moist! Moist cold stratification 32-41°F for 30 to 45 days. Fall planted red oak group acorns do not germinate until the following spring. 304 (jfn2004); 410 seeds per pound.
cultivation: Short lived or sickly on alkaline soils. One of the faster growing oaks. One of the easier oaks to transplant with its fibrous root system. Optimum pH 7.0 (?) pH slightly acidic. Prefers moist to saturated soils, but will tolerate up to 3" of flooding for short periods. Prefers sandy, acidic soils. Does not do well in calcareous glacial tills with high clay % or high pH. Nutrient load tolerance low. Salt tolerance low to moderate. Siltation tolerance low. Full sun, not shade tolerant. Great Lakes Nursery catalog states "tolerates high pH & wet soils". Hardy to zone 4.
Description: Deciduous, native tree, 60-75', large pyramidal oak of flat woods, sweeping lower branches, leaves deeply cut; rusty to red bronze-red fall color.
Comments: status: phenology: Useful for upland slope stabilization. "Not native in the Co but it has been extensively planted in parks, on roadsides, & even in forest preserves. Much of the planting was done in the early 1930's & these trees are now 9 or more inches in diameter dbh & are beginning to fruit." (ewf55)
Associates: Good den tree (esp. for wood ducks & flying squirrels) (*Hey, Rocky. Watch me pull a rabbit out of my hat.).* Acorns eaten by wildlife. Also provides cover.

Quercus rubra Linnaeus RED OAK, aka NORTHERN RED OAK, *Wi'sugi'mitigo'mic,* bitter oak (Ojibwa) (*rubens, ruber, rubra, rubrum* red, ruddy, from Latin *ruber, rubr-, & rufus* red, ruddy, Latin *ruber*, Greek *erythros* red, Sanskrit *rohita* red, reddish, rudhira red, bloody, for the fall color.)
Habitat: Dry or upland woods, stream banks, well drained soils, glacial drift, & rich moist loam. Rich upland woods, along riverbanks, on well-drained slopes. Well drained to moist soils with medium fertility. Optimum pH 5.4. Hardy to zone 2. distribution/range:
Description: Medium to large native oak, 60-80', russet-red fall color, shade tolerant, but likes full sun, fast grower, not tolerant of very high pH.
"Well scattered over the Co but not abundant anywhere; Kishwaukee River & its south branch, Page Tract on Kent Creek, Sugar Creek at Yale bridge, etc. It is not in the black oak woods on the dunes north of Shirland." (ewf55)
Comments: status: phenology: Acorns ripe 9-10. Good timber tree. 96 (jfn04); 144 (aes10) seeds per pound.
Associates: Good den tree.
ethnobotany: Acorns available in September to October (later on the ground). Good crop every two to three years. Used for food by Ojibwa (important starch food), Pottawatomie (used all acorns) & Ojibwa (sm32, 33, Waugh 1916). Ojibwa food & noted for Tewa (den28). Cambium used as medicinal plant by Ojibwa & Pottawatomie (sm32, 33). Ojibwa medicinal plant for heart (den28) bark is slightly tonic, "powerfully" astringent, & antiseptic (den28). Used for dye by Pottawatomie (sm33)
VHFS: [*Q borealis* F Michaux]

Quercus rubra

Quercus sp., *Mitigo'mizinc* as Ojibwa utility plant. This Ojibwa name is different from the other *Quercus* species listed. Densmore (1928)

SOUTHERN RED OAK in known to chemically inhibit SWEETGUM. (Chick & Kielbaso 1998)

Quercus stellata Wangh. "Whilst he poorest soils, those especially of the 'bushy barrens' and 'oak openings,' are occupied mostly with different kinds of oak, among which the post-oak, (*Quercus obtusiloba*,) and black-jack, (*Q. ferruginea,)* are most prominent" As *Q obtusiloba* Michx. (Short 1845).

Quercus velutina Lamark BLACK OAK, aka YELLOW-BARKED OAK, (*velutinus -a -um* (vel-ew-TEEN-us) velvety for the buds.)

Habitat: Dry woods, glacial drift, or gravelly uplands & poor soil. Mostly on dry upland soil. Dry woods, sand soils.

Best on rich well-drained soils. Hardy to zone 2. Long-lived, 150-200 years. distribution/range:

Description: Large tree to 120', slow growing at first, then faster; irregular crown, extensive taproot. Leaves have fuzzy undersides; yellow fall color.

Comments: status: phenology: Acorns ripe 9-10. 144 (jfn04); 240 (aes10) seeds per pound. "Our common "black oak". Abundant but scrubby in dry sandy uplands. In more mesophytic places it is large & plentiful." (ewf55)

Associates: Good den tree.

ethnobotany: Acorns available in September to October (later on the ground). Good crop every two to three years. Supposedly used for food by Ojibwa but did not grow in their territory of early historic times. Bark used as medicinal plant by Menominee (sm23). Used for dye by Ojibwa (sm32).

Quercus X *QUERCUS* HYBRIDS

"In Pecatonica & Sugar River bottom are trees that are apparently the following hybrids: *Q alba* x *macrocarpa*, *Q alba* x *bicolor*, *Q macrocarpa* x *bicolor*. Less common & less definite in Pecatonica & Kishwaukee River bottoms is *Q velutina* X *ellipsoidalis*. We have seen no trees that suggest hybridization between *Q rubra* & another species." (ewf55)

GROSSULARIACEAE DC. 1805 **CURRANT FAMILY** A family of one genus of the northern hemisphere & the Andes of South America. The fruit are 1-celled, inferior berries, with 2 parietal placentae; seeds many, embryo minute, in abundant horny albumen. The berries have a sweet, mucilaginous pulp, & malic or citric acid. They are always wholesome & usually esculent. *Ribes* is sometimes placed in the *Saxifragaceae.*

RIBES Linnaeus 1753 CURRANTS & GOOSEBERRIES *Grossulariaceae* (*Ribes* (rie-BEEZ) from Arabic or Persian *ribas,* acid tasting, referring to the fruit. New Latin, from Medieval Latin, currant, from Arabic *rībās* rhubarb). A genus of about 150 species of the temperate Northern Hemisphere & montane South America. The fruit are 1-celled, inferior berries, with 2 parietal placentae; seeds many, embryo minute, in abundant horny albumen. (*In spite of all that, they make good pie & jelly*.) Gooseberries, subgenus *Grossularia*, differ from currants, subgenus *Ribes*, chiefly in their spiny stems, and flowers grow one to three together on short stems, not in racemes. All native *Ribes* will serve as an alternate host for WHITE PINE BLISTER RUST. *Ribes* are larval hosts for the GRAY COMMA BUTTERFLY. The dried currant sold in grocery stores is a raisin from a cultivar of small grape, the ZANTE CURRANT.

"Common in low places as stream bottoms that are brushy, low woods, sloughs, & low prairies." (ewf55)
Associates: AMERICAN BLACK CURRANT is an alternate host for white pine blister rust (*Cronartium ribicola*), which infests five-needled pines. Because of their association with the rust, *Ribes* spp. have been the targets of various eradication efforts. During the winter of 2010-2011, rabbits ate many plant stems in our woods; I prefer to do my own pruning.

ethnobotany: Berries available July to September. Used for food by Ojibwa, Sauk-Fox, & Iroquois (Gilmore 1933, sm28, Waugh 1916). *Ribes* species used by Menominee (Morse 1822). Found growing at a Riffle River enclosure.


Ribes americanum

Ribes aureum Ph MISSOURI CURRANT, aka GOLDEN CURRANT,
Bright yellow flowers, fruits yellow.
Blooms April-May. "A beautiful shrub 6 to 10f high, common in cultivation. Flowers numerous, very fragrant." (w73)

Ribes cynosbati Linnaeus PRICKLY GOOSEBERRY, aka DOGBERRY, EASTERN PRICKLY GOOSEBERRY, PRICKLY WILD GOOSEBERRY (*cynosbati* in one source as dogberry, but dogs thorn bush, from Greek κυον*, kyon*, κυνο-, *kyno-*, a dog, & βατι, *bati*, thorn. Epithet formerly capitalized.)
Habitat: Open loamy or rocky woods, thickets, & hillsides. distribution/range:
"Much less common than *R. missouriense*. Usually in sandy woods as those east of Roscoe & in the sand in the Sugar River area." (ewf55)
key features:
Associates: ethnobotany: Berries available late July to September. Berries are covered with long prickles, but are said to be eatable. Used for food by Ojibwa & Pottawatomie. Staple berry for Menominee (Gilmore 1933, sm23, 33). Used as medicinal plant by Pottawatomie (sm33).

Ribes glandulosum Gauer SKUNK CURRANT, aka WILD CURRANT, SWAMP SKUNK CURRANT, *Wabos'odji'bik,* rabbit leaf as Ojibwa medicine for diseases of women. (*glandulosus -a -um* glandular.)
distribution/range:
Low growing wetland shrub, hairy red fruit. Hardy to zone 2. Softwood cuttings.

Ribes hirtellum Michaux HAIRY-STEM GOOSEBERRY, aka NORTHERN GOOSEBERRY, SWAMP GOOSEBERRY, (*hirtellus -a -um* somewhat or rather hairy, covered with short stiff hairs, minutely hairy, pubescent.)
distribution/range:
"Uncommon. In the shallow bogs in Coon Creek bottom & on a shaded limestone cliff on Hall Creek at the "dells"." (ewf55)

Ribes hudsonianum Richardson CANADIAN BLACK CURRANT, aka NORTHERN BLACK CURRANT, CURRANT,
Habitat: Swampy woods & rocky slopes, boreal. distribution/range:
Description:
Associates: ethnobotany: Berries available July to August. Used for food by Ojibwa (Reagan 1928).

Ribes missouriense Nuttall MISSOURI GOOSEBERRY, aka COMMON WILD GOOSEBERRY,

"In woods & thickets & in pastures & fence-rows on the prairies." (ewf55)
Associates: ethnobotany: Berries available July to September. Used for food by Ojibwa (Gilmore 1933)

Ribes odoratum Wendl. CLOVE CURRANT, aka BUFFALO CURRANT, (*odoratus -a -um* (o-do-RAH-tus) scented, odorous, fragrant)
Habitat: Hardy to zone 3. distribution/range:
Description: Tall arching shrub, 6-8', racemes of clove scented yellow flowers, showy. Red & maroon fall colors. Softwood cuttings, hardwood cuttings.
"Common on roadsides & railroads especially on prairies in the west part of the Co." (ewf55)

Ribes oxyacanthoides Linnaeus CANADIAN GOOSEBERRY, aka SMOOTH GOOSEBERRY, NORTHERN GOOSE BERRY, GOOSE BERRY, *cabo'minaga'wunj,* smooth berry (Ojibwa)
Habitat: Woods & low ground. distribution/range:
Associates: ethnobotany: Berries available July to August. Used for food by Ojibwa (sm32). Used as medicinal plant by Ojibwa (sm32). Ojibwa medicine for diseases of women (den28).

Ribes sp., *Micidji'minaga'wunj,* fuzzy fruit as Ojibwa medicine for urinary trouble & as food. Densmore (1928) *Ribes* sp used by Huron & Iroquois (Radisson 1885, Waugh 1916). Found growing at a Riffle River enclosure & at a Wexford Co site.

Ribes triste Pallas SWAMP RED CURRANT, aka RED CURRANT, *Cigagwa'tigon,* skunk-like (Ojibwa) (*tristis -is -e* Latin sad, bitter, & dull.)
Habitat: Cold woods, swamps, & bogs. distribution/range: Boreal eastward.
Description:
Associates: ethnobotany: Berries available in July to August. Used by Ojibwa & Iroquois (sm32, Waugh 1916). Used as medicinal plant by Ojibwa (sm32). Ojibwa medicine for gravel (den28).

HAMAMELIDACEAE R. Brown 1818 **WITCH HAZEL FAMILY, WITCHHAZELWORTS** A family of about 27 genera & 87 species of trees & shrubs tropical to temperate, especially east Asia. Fruits are woody capsules, 2-beaked, 2-celled, & 2-seeded.

FOTHERGILLA Linnaeus *filius Fothergilla* dedicated by the younger Linnaeus to Dr John *Fothergill* (1712-1780), London physician & patron of & expert on early American botany. Fruits are capsules adherent at the base, 2-lobed, 2-celled, cells 2-valved, 1-seeded.

HAMAMELIS Linnaeus 1753 **WITCH HAZEL** *Hamamelidaceae Hamamelis* (ham-a-MAY-lis) from a Greek name used by Hippocrates ἁμαμηλίς, *hamamēlis,* medlar, from ἅμα, *hama*, with, & μῆλον, *mēlon* apple, fruit, meaning with flowers & fruit together on the tree. The medlar is a small Eurasian tree, *Mespilus germanica* Linnaeus, with fruits like a crab apple. Deciduous shrubs. Fruits are capsules, nut-like, 2-celled, 2-beaked.

Hamamelis virginiana Linnaeus **WITCH HAZEL,** aka **AMERICAN WITCH-HAZEL** The name "WITCH-HAZEL" refers to a superficial resemblance to *Corylus*, & the "perverse" habit of flowering in the fall (Weakley 2007). HAZLE may also be seen in older botanies.
Habitat: Moist or dry woodlands. Hardy to zone 3. distribution/range:
Culture: Best planted outdoors in the fall (pm09).
Description: Native, deciduous shrub, 15-20'; late fall blooming until very hard freeze, yellow flowers & yellow fall color, branches often covered with fruit capsules & flowers after leave drop; fruit a woody capsule containing 2 nuts.
Comments: status: phenology: Blooms
"This curious shrub is not infrequent in our forests, & amidst the reigning desolations of winter puts forth its yellow blossoms" (Wood 1873) "Known to us in the county only in Kishwaukee River gorge above New Milford where it grows sparingly. It does not grow in Sugar River sand area but is very common at Castle Rock in Ogle Co." (ewf55)
Associates: Upland gamebirds eat seeds. Aquatic & terrestrial furbearers eat bark, foliage, & seeds. Deer eat twigs & foliage.
ethnobotany: Leaves available in summer. Used by Iroquois for beverage (Fernald & Kinsey 1943). Twigs used as medicinal beverage by Ojibwa, Menominee, & Pottawatomie (Gilmore 1923, sm23, 33). Seeds used as sacred beads in

LIQUIDAMBER Linnaeus 1753 **SWEET GUM** *Hamamelidaceae.* Placed by some authors in the *Altingiaceae,* SWEET GUM FAMILY. *Liquidamber* (li-kwid-AM-bar) from Latin *liquidus, liquidum*, fluid, liquid, & Medieval Latin (or Arabic) *ambar*, amber, for the ambar-colored resin obtained from the bark. Deciduous trees with small monoecious flowers & a globose fruit composed of many woody carpels. Fruits aggregate, (*sorosis*), globular, consisting of the hardened scales & woody, 2-celled & woody, 2-celled capsules which open between the beaks; ovules many, but only 1 or 2 maturing into a seed.

Liquidambar styraciflua Linnaeus SWEET GUM, aka RED GUM (*styraciflua* (sti-ra-KI-FLOO-a) flowing with styrax (from *Styrax*, another genus of resinous trees), or storax, a grayish brown fragrant liquid (an aromatic balsam), containing resin, styrene, & cinnamic acid, used as an expectorant in medicine & sometimes in perfumery.) *Liquidambar styraciflua* is a botanical tautonym.
Habitat: Bottomland woods. distribution/range:
Culture: 62,000 (jfn04) seeds per pound.
Description: Large native tree to 100'; fruit globular, compact ball, suspended by a slender pedicel, consisting of numerous capsules, each containing 1-2 seeds.
Comments: status: phenology: Blooms Leaves fragrant & bark exudes a balsamic resin.

"The thinner lands are clothed chiefly with … hickories and gums (*Liquidamber styraciflua* and *Nyssa* of two or three species)" (Short 1845).
Associates: Waterfowl, upland game birds, songbirds (esp American goldfinches), terrestrial furbearers, & small mammals (esp grey squirrels) eat the seeds. Aquatic furbearers (esp beavers) eat seeds & wood. The bark is a favored food of beavers.

ethnobotany:

HIPPOCASTANACEAE BUCKEYE FAMILY Placed by some authors in the *Sapindcaceae.*

AESCULUS Linnaeus **HORSE CHESTNUT, BUCKEYE** *Hippocastanaceae Aesculus, Æscŭlus, Escŭlus* (IES-ku-lus) New Latin, Linnaeus' name from Latin, *aesculus, aesculi*, or *esculus*, for the durmast oak, an oak with edible acorns (alternately the beech, or bay oak or holm oak), from *esca*, or *escul-,* edible, from Greek αἰγίλοψ, *aigilops,* havergrass, Turkey oak. Alternately from Greek αἰγίλοψ, *aigilops,* a kind of beech, hence Latin *ægilus, æcilis*, then *æsculus*. Related to Greek φηγὸς, *phegos*. The Turks are reputed to have used 'conkers' or horsechestnuts of *Aesculus hippocastrum* in the treatment of bruising in horses, the nuts having the principle aescin that has anti-inflammatory properties. A slight variant is that Turks fed the nuts to horses to help them breathe better, hence the common name HORSE-CHESTNUT. The common name BUCKEYE is from the resemblance of the nut to a deer's eye.

A genus about 13 species of trees & shrubs found in temperate North America, eastern Asia, & southeast Europe with palmately divided leaves, showy flowers in ample panicles, & large shiny seeds. Fruits are coriaceous, 2-3-valved, containing one or very few large, smooth seeds.

Seeds ripen late summer to fall. B seeds will germinate upon shifting to 70ºF after 90 days of cold moist stratification at 40ºF, * seeds are hydrophilic, intolerant of dry storage. Seeds planted outdoors must be wire screened to exclude rodents. Seedlings quickly develop a taproot, which may be trimmed before transplanting. (cu02)

Suckering species can be propagated from root cuttings in early or late winter. Place 3-4" root sections vertically in 1:1 sand: peat mix in coldframe. Suckers can also be potted up. (cu02)

Aesculus discolor Pursh RED BUCKEYE (*discolor, discolorus* (DIS-ko-lor) of two colors or of different colors, of different coloring, often referring to the leaves that are green above & grey-white below)
Habitat: Rich woods. distribution/range:
Description: Small native tree up to 25'.

Aesculus glabra Willdenow OHIO BUCKEYE (*glaber, -bra, -brum* (GLA-ber) glabrous, lacking hairs smooth, bare, from Latin for bald.)
Habitat: Rich woods, bottomlands, & alluvial soils. distribution/range:
Description: Medium tree to 55. Terrestrial furbearers (esp squirrels) eat the fruit.

Aesculus glabra

Aesculus hippocastanum Linnaeus COMMON HORSECHESTNUT (hip-oh-KA-ste-num) Latin for the common name) Native of southeast Europe. Planted as a street tree & escaping.

Aesculus pavia RED BUCKEYE, aka BUCKEYE, (PAH-ve-a, after Peter Paaw, Latinized as *Petrus Pavius*, Dutch botanist, died 1616.)
Habitat: Rich river bottom woodlands. distribution/range:
Culture: Difficult to transplant, B&B in spring
Description: Deciduous, native shrub, 10'& up, clump forming; flowers spectacular red, perfect; fruit is capsule 1.5-3.5" diameter with 1-2 large brown seeds.
Associates: Pollinated by hummingbirds, probably some bees & other insects. Seeds have low food value to wildlife, poisonous to wildlife; some leaf splotch & mildew problems, rarely serious.

HYDRANGEACEAE Dumortier 1829 **HYDRANGEA FAMILY**

HYDRANGEA *Hydrangeaceae Hydrangea* (hi-DRANG-gee-a) from Linnaeus, Modern Latin from the Greek ὕδωρ, ύδρ-, *hydor*, *hyd-,* water, & ἄγγος, *aggos,* (*angos*) or αγγεῖον, *aggeion*, (*angeion*), a jar, or vessel, for the cup-shaped seed capsules, or in reference to their requirement for an abundance of water. About 25 species of deciduous shrubs & climbers of eastern North America & eastern Asia. Fruits are capsules , 2-beaked, opening by a foramen between the beaks; seeds numerous. Formerly in *Saxifragaceae*.

Hydrangea arborescens Linnaeus SMOOTH HYDRANGEA, aka AMERICAN HYDRANGEA, HILLS -OF-SNOW, SEVENBARK, WILD HYDRANGEA, WILD SMOOTH HYDRANGEA (*arborescens* (ar-bo-RES-enz) becoming tree-like, growing into a tree, woody or tree-like.)
Habitat: Known from the sandstone canyons in Starved Rock State Park, & with a 40 mph *gestalt*, can be seen on some IDOT roadsides in the park. Dry or moist, often rocky, woods & hillsides; woods, moist shaded ravines.
distribution/range: Native to most of eastern North America.
Culture: propagation: Can be grown from seed.
asexual propagation: Softwood cuttings, hardwood cuttings. Division of mature plants. Fast growth rate.
cultivation: Transplants easily from containers. Hardy to zone 4 & the warmer parts of zone 3. Adaptable to most conditions; partial shade; flowers on new wood; acidic to neutral soils. Some websites recommend cutting them back to 1-2 feet in late winter. The suckers may eventually present a weedy appearance. We have had the species (1.5-2.0') & 'Annabelle' (2.0-3.5') in our landscapes. The species needed some supplemental watering but we were growing it over gravel subsoils. 'Annabelle' is a winter rabbit magnet & gets eaten to the ground if not fenced. Now with two Malamutes, we consider them tolerant of benign neglect.
bottom line: Clone by division or cuttings.
greenhouse & garden:

pink), perfect, fertile or sterile; fruit is a dry capsule, 0.13" long, persisting through the winter, not showy. key features: leaves ovate, obtuse, or cordate at base; nearly smooth. "Stems emerge from ground with few branches; large opposite, serrated leaves; imbricate buds with 4 to 6 scales; buds are greenish brown & glabrous; balls of flowers covering plant in summer; persistent flower panicles" (uconn).
Comments: status: phenology: Blooms May (June) - July. The dried flowers clusters are used in fall & winter arrangements; they may be picked white or brown. Left alone, they provide winter interest. In our area, it can used as a "large" perennial, desirable for the summer flowering effect, or in a shrub border, a massing, & for naturalizing in shady areas.

When growing the species in our old yard, we had gravelly outwash soils, & grew it under the canopy of a Siberian Elm (now we have aeolian sand). To cool the roots, we mulched the root zone with loosely spaced St. Peter's sandstone cobbles & bark mulch. This reduced the water requirements significantly. The species acted as our "landscape canary in a coal mine". When it wilted, it was time to water certain planting beds.
Associates: Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera, Diptera, Lepidoptera*, & *Coleoptera*. Larval host for *Darapsa versicolor* HYDRANGEA SPHINX MOTH. Flowers attract many insects, but of little wildlife value. Species dies back to the ground after severe winters. Several insect, bacterial, & fungal problems, rarely serious. Species may be subject to severe winter damage by rabbits. Liabilities are said to include lack of winter hardiness, bud blight, bacterial wilt, leaf spot, rust, powdery mildew, & aphids, scale, & nematodes.

ethnobotany: Used medicinally by pioneer settlers for treatment of kidney & bladder stones, & dyspepsia.
VFHS: Var *grandiflora*, common wild form with colonial habit. Small greenish white flower heads with few if any sterile showy flowers. Good for soil erosion control on moist shady slopes. Hardy to zone 3. Wide spread var *arborescens* with leaves glabrous or with only a few scattered hairs along the midrib beneath. Var *discolor* Ser (var *deamii)* occurs in central Indiana & Illinois with leaves ± densely pubescent beneath with minutely tuberculate hairs. The var *discolor* is also treated as *H cinerea* Small. (DIS-ko-lor) two colored, as the leaves are grey-white below.)
SHOWY HYDRANGEA
Description: One of the sterile types found in the wild, with 4" wide flower heads on sturdy erect stems which do not topple in wind & rain. Flowers usually pure white in full bloom. Tan dried-flower heads persist through winter. Hardy to zone 3. Softwood cuttings.

HYPERICACEAE AL de Jussieu 1789 **ST JOHN'SWORT FAMILY**
See eudicots.doc

JUGLANDACEAE A Richard ex Kunth 1824 **WALNUT FAMILY**

CARYA Nuttall **HICKORY** *Carya* (KA-ree-a) from Greek *karya*, nut tree & κάρυον, *káryon*, nut, kernel, the name for *Juglans regia*, & other nuts, akin to Latin *carina,* hull, half of a nutshell, Sanskrit *karkara,* hard.

The genus is larval host for *Acronicta americana* AMERICAN DAGGER MOTH, *Actias luna* LUNA MOTH, *Amorpha juglandis* WALNUT SPHINX MOTH, *Citheronia regalis* ROYAL WALNUT MOTH, *Parasa indetermina* STINGING ROSE CATERPILLAR MOTH, *Satyrium calanus* BANDED HAIRSTREAK BUTTERFLY, & *Satyrium caryaevorum* HICKORY HAIRSTREAK BUTTERFLY. Several species have long strips of peeling bark, which may be a local example of an adaptation to help eliminate creeping vines & epiphytes.

Hickories are second only to Oaks in the production of hard mast. Hickories produce good mast crops more consistently than oaks.

Nuts ripen in the fall. Fallen hickory nuts are readily sought by many animals. Collect large nuts with husks that are browning and beginning to crack. Collect at least twice as many as you will need. Nuts with weevil holes may not grow. Pour nuts into a bucket of water and discard the floaters. Soak sound seeds for 1-2 days, drain well, and place in an ample quantity of vermiculite in freezer bags in the refrigerator until spring. Germination hypogeal, with long, thick taproot, then the stem and a few pinnate leaves. Plant nuts deeply, at least 12", in their permanent location, or plant in deep, narrow pots for 1st year. Plant into garden or woods at start of second year, taking care not to damage the taproot. Fall planted nuts will need rodent exclusion. (after cu02)

"In Illinois, the richest groves, interspersed though the prairies, are constituted mainly of the same kind of trees which indicate the best soils in the Western States, as … hickories." " The thinner lands are clothed chiefly with … hickories" (Short 1845).

Carya cordiformis (Wangenheim) K. Koch. BITTERNUT HICKORY, aka BUTTERNUT, PIGNUT, PIGNUT HICKORY, SWAMP HICKORY, YELLOWBUD HICKORY, (*cordiformis -is -e* (kor-di-FORM-is) New Latin with the form of a heart,

Description: Medium or large, deciduous, native tree to 75', fine deep green foliage, brilliant yellow fall color late in fall, about mid-October;
Associates: Waterfowl (esp wood ducks) & upland game birds eat nuts. Songbirds eat nuts & flowers. Terrestrial furbearers (esp squirrels) eat nuts & bark. Small mammals (esp eastern chipmunks) eat nuts & leaves. Deer eat foliage, twigs, & nuts.

ethnobotany: Nuts available in October. Good crop every one to three years. Nuts used as food by Iroquois (Waugh 1916).
Comments: BITTERNUT HICKORY & SHAGBARK HICKORY repel the elm bark beetle, *Scolytus multistriatus*, through the production of juglone (5-hydroxy-1, 4-naphthoquinone). Juglone is generally associated with BLACK WALNUT. The compound occurs mostly as a glucoside in intact healthy cells, & in perceptible amounts in the atmosphere around healthy trees. Additional amounts of juglone are released to the atmosphere when cells are ruptured, during stress (as in drought), or disease. Irreversibly diseased hickory trees loose the ability to release juglone & can no longer repel secondary predators or parasites. (Norris 1997)

Carya glabra (P Miller) Sweet PIGNUT HICKORY (*glaber, -bra, -brum* gla'ber (GLAY-ber, or GLA-ber) gla'bra (GLAY-bra) glabrous, lacking hairs, smooth, bare, from *glaber, glabra, glabrum,* Latin adj, hairless, smooth; in one source from *glaber, glabri*, Latin for bald.)
distribution/range:
Small inedible nut, yellow fall color. Hardy to zone 4. 48 (jfn04) seeds per pound.

Carya illinoiensis (Wangenheim) K Koch PECAN (*illinoensis -is -e* of, from, or pertaining to Illinois.)
Habitat: Rich bottomlands, moist woods. Hardy to zone 5.
Description: Large tree, river bottom forests, many cultivars. distribution/range:

"I am able, indeed, to indicate but two trees which are in any way peculiar to the forests of Illinois; and these are the paccan and the catalpa. Of these the paccan (*Carya olivaeformis,)* is found abundantly on the southern borders of the State, where about Shawneetown and other points on the Ohio river, it constituted a large portion of the original forest; and from these districts great quantities of the nuts have been exported. They are not considered, however, to be equal, either in size or flavor, to the paccan-nuts of Texas. *Carya illinoinensis* (Wangenh) K Koch as *C olivaeformis* (Michx.) Nuttall (Short 1845).
Larval host *Citheronia regalis*, ROYAL WALNUT MOTH.
The specific epithet is also spelled *illinoinensis*. [*Hicoria pecan* (Marshall) Britton]

Carya laciniosa (Michaux) Loud. SHELL BARK HICKORY, aka KINGNUT, KINGNUT HICKORY, BIG SHELLBARK, RIVERBANK HICKORY, BOTTOMLAND HICKORY, (*laciniosus -a -um* much laciniate, cut into narrow divisions, jagged, slit, cleft.)
Habitat: Rich bottomlands, moist woods, wetlands. Hardy to zone 5. distribution/range: Southern 2/3 of Illinois
Description: Large, deciduous, native tree to 100', bark in long peeling strips, large edible nut. 32 (jfn04) seeds per pound. Currently called *Carya laciniosa* (Michx f) G Don.

Carya ovalis (Wangenheim) Sarg. SWEET PIGNUT HICKORY, aka RED HICKORY, (*ovalis* oval, broadly elliptical, from Medieval Latin *ovalis*, from Late Latin, of an egg, from Latin *ovum* egg & *-alis* -al.) upl
Dry upland woods. Sometimes referred to as *C glabra* (Mill) Sweet var *odorata* (Marshall) Little. (Lumped in *C. glabra*?) Weakley (2007) notes the *C glabra-C ovalis* complex can be treated as anywhere between 1 & 10 taxa.

Carya ovata (P. Miller) K. Koch SHAGBARK HICKORY, aka COMMON SHAGBARK HICKORY, SHELLBARK HICKORY, SCALY-BARK HICKORY, (*ovatus -a -um* (o-VAH-tus) for the ovate leaflets.)
Habitat: Rich woods, bottoms, & slopes; low, shaded woods, upland woods, slopes. distribution/range: Optimum pH 6.5, adaptable to various soils. "Common in mixed oak woods." (ewf55)
Culture:
Description: Straps of peeling grey bark, edible nuts to wildlife & people. Some trees have "butter yellow' fall color. Yellow to golden-brown fall color.
Comments: status: phenology: 32 (jfn04); 96 (aes10) seeds per pound.
Associates: Used by wood duck, turkey, ring-necked pheasant, blue jay, woodpecker, chipmunk, & deer. In many tree species, loose, peeling bark is an adaptation to help eliminate creeping vines & epiphytes.

ethnobotany: Nuts available in October. Good crop every one to three years. Nuts used as food by Ojibwa,

tomentose, woolly, densely woolly, pubescent, densely covered with short, soft, tangled hairs. In entomology and anatomy, flocculent, flossy, woolly, from *tomentum, tomenti,* n, stuffing of a pillow, mattress, &c, & *-osus -a -um*, adj suffix noting plenitude, abundance, for the hairy young shoots.) upl Sørensen (1984) reported a large reproducing population in Chief Shabbona Grove in DeKalb Co. Also in the southern part of the upper Great Lakes, & the nuts were used by the Indians. Large wide tree, large edible nuts. distribution/range: Hardy to zone 5.
Associates: ethnobotany: Densmore (1928) lists *Hickoria alba* (L) Britt [*Carya tomentosa* (Poir)] Nutt, MOCKERNUT or BIG BUD HICKORY, HICKORY, *Mi'tigwabak',* bow wood as Ojibwa headache medicine & utility plant.

JUGLANS Linnaeus **WALNUT, BUTTERNUT** *Juglandaceae* (YOO-glahnz, more commonly JOO-glahnz) from the Latin name for *J. regia* from *Jovis* of Jove, Jupiter & Latin *gland, glans* acorn or nut, akin to Greek *balanos*, acorn. Liberally translated, it means you have Zeus exactly where you want him. About 21 species of deciduous trees & shrubs, of Mediterranean Europe to east Asia, & North America to the Andes of South America. The two species of the eastern USA are distantly related, with *J. nigra* most closely related to two southwestern species, *J microcarpa* & *J major*, & *J cinerea* most closely related to several eastern Asian species. (w07) Formerly placed in *Wallia*.

Larval host of *Acronicta americana*, American Dagger Moth, *Actias luna,* Luna Moth, *Amorpha juglandi*s, Walnut Sphinx Moth, & *Satyrium calanus*, Banded Hairstreak Butterfly. Songbirds eat nuts. Aquatic furbearers eat nuts & bark. Terrestrial furbearers (esp squirrels) eat nuts.

Juglans cinerea Linnaeus *USA BUTTERNUT, aka WHITE WALNUT, (*cinereus -a -um* ashy-grey colored, ashen-grey, like ashes, for the bark) Section *Trachycaryon.*
Habitat: Low rich woods, riverbanks, & low hillsides, bottomland woods. "Uncommon. Usually in bottoms as North Kinnikinnick & Hall Creeks & Kishwaukee River at Camp Hillcrest above new Milford." (ewf55) Hardy to zone 3.
distribution/range:
Culture: 32 (aes10) seeds per pound.
Description: Medium tall, deciduous, native tree, 50-60(-90)', wide spreading; gray bark with tight straps; very coarse branching form in winter; large compound leaves; good tasting nuts in sticky husks. key features: "Pistillate flowers are in spikes & perigynous; white, hairy, soft buds; large, oblong fruits; viscid-hairy rachis." (Ilpin)
Comments: status: A US species of special concern. phenology: Blooms 4-5. C3.
Associates: This species is being stricken by butternut canker disease, which threatens its existence.

Larval host *Citheronia regalis*, Royal Walnut Moth. Squirrels eat the nuts.

ethnobotany: Nuts available in October. Good crop every 2-3 years. Used for food by Ojibwa, Pottawatomie, Sauk Fox, & Iroquois (sm23, 32, 1933, Waugh 1916). Stored for winter. Immature fruits can be pickled. Sap used as medicinal plant by Pottawatomie & Menominee (Smith 1933, 1923). Used for dye by Ojibwa & Menominee (sm23, 32, den28) & technology. The nuts have been found frequently in archaeological sites.

The wood is used in cabinetry.

Juglans nigra Linnaeus BLACK WALNUT ((NIG-ra) *nigra* black for the dark bark.) Section *Rhysocaryon.*
Habitat: Rich woodlands. "Common in mixed woods." (ewf55) Deep rich moist soils. Optimum pH 7.2. Hardy to zone 4.
Description: Large tall tree, 50-75' to 150', coarse branch pattern; black furrowed bark; compound foliage, with some yellow fall color, but leaves drop early, round edible nuts in large green husks. distribution/range:
Important timber tree.
Culture: 48 (aes10) seeds per pound.
Comments: status: phenology: Blooms 4-5. C3. Species leaves out very late & drops its leaves very early, having one of the shortest active seasons of in our area. In our immediate area, this species may have invasive tendencies. It is volunteering in very dry woods.

"In Illinois, the richest groves, interspersed though the prairies, are constituted mainly of the same kind of trees which indicate the best soils in the Western States, as black walnut." *Juglans nigra* L. (Short 1845)
Associates: Flowers are wind pollinated & contribute to hay fever. Favorite food of squirrels, which widely sow this species. Also used by turkeys.

Production of juglone (5-hydroxy-1,4-naphthoquinone) as the main repellent of elm bark beetle *Scolytus multistriatus*. Inhibits nearby white pines, Austrian pines, Scotch pines, red pines, apples, white birch (Chick & Kielbaso 1998)

ethnobotany: Nuts available in October. Nuts have an earthier taste than ENGLISH WALNUTS. Good crop irregular. Used for food by Sauk-Fox & Iroquois (sm28, Waugh 1916). Nut hulls were used as dye by Ojibwa (Gilmore 1933).

MORACEAE Lindley 1847 **MULBERRY** or **FIG FAMILY** A family of about 38 genera & 1100 species of trees, shrubs, vines, & herbs of tropical, subtropical, & a few warm temperate areas, including *Ficus* FIGS, *Morus* MULBERRIES, & *Artocarpus* BREADFRUIT.

MACLURA Nuttall 1818 **OSAGE-ORANGE** *Moraceae Maclura* (ma-KLOO-ra) After William *Maclure*, 1763-1840, American geologist. A monotypic genus, a deciduous tree endemic to the south central United States. Some authors include the Asian *Cudrania* in this genus. *Maclura* & its close relatives have a relictual distribution of eastern North America & eastern Asia.

Maclura pomifera (Rafinesque) CK Schneider OSAGE ORANGE, aka BODARK, *BOIS-D'ARC*, BOW-WOOD, HEDGE, HEDGE APPLE, HORSE APPLE, INDIANA BRAINS, MACLURA THORN, *NARANJO CHIN,* (*pomiferus -a -um* (pom-I-fer-rus) apple-bearing, fruit-bearing, or pome-bearing, or by convention with apple-like fruit, from classical Latin *pōmifer,* fruit-bearing, from *pōmum, pōmi,* fruit, apple, & *-ferus-a -um*, -iferous, bearing, adjectival suffix from Latin *-fer* (*-ifer*), producing, from the verb *fero, ferre*, to bear, bring, carry.) The common name is a reference to the fact that the original range of the species somewhat coincided with the homeland of the Osage Indians plus the resemblance of the fruit to an orange. BOW-WOOD is a reference to the woods use for archery bows by Native Americans.
Habitat: Species has escaped from 19th century cultivation & has invaded exposed, eroding soils, particularly in overgrazed pastures, where livestock have dispersed the seeds. Now occurs in old hedge plantings, thickets along fencerows, ditch banks, ravines, & around former farmsteads. Grows in disturbed areas, hedgerows, & woods, rich moist soils. Prairie, plains, meadows, pastures, savannahs, woodlands edge, opening, fencerows, ditches, ravines, & depressions. It grows best on rich, moist, well drained, bottomland soils, but it is known from alkaline soils, shallow soils overlaying limestone, clayey soils, & sandy soils. Most OSAGE ORANGE hedgerows have been ripped out in the name of progress. distribution/range: Native to the s cent US; apparently naturalized in Il; woods, roadsides; occasional throughout the state (m14). Native southwest of our area, Texas, southeastern Oklahoma, southwestern Arkansas, & northwest Louisiana. Introduced & naturalized or escaped elsewhere far beyond its native range. Extensively planted in the 18th & 19th centuries as natural barbed wire fencing.

Culture: Propagation is by softwood cuttings or seed. Macerate & dormant seed or cold moist stratify. "Seeds have a slight dormancy which is overcome by soaking in water for 2 days or stratifying in sand or peat for 30 days. Seed germination requires exposed mineral soil & full light. Fruit stored over winter in piles outdoors is easily cleaned in the spring, & the seed germinates promptly. Viability can be maintained for at least 3 years by storing cleaned, air-dried seeds in sealed containers at 41°F (5°C). Recommended sowing depth is about 0.25-0.5", (6-13 mm), soil should be firmed" (Carey 1994, Burtonsilvics). Fast growth rate, may overtop nearby seedlings. Limited commercial availability as seeds & seedlings.

"Osage-orange may be vegetatively propagated using root cuttings or with greenwood cuttings under glass. To propagate thornless male (nonfruiting) clones for ornamental use, scions or cuttings should be taken only from the mature part of the crown of a tree past the juvenile stage. Perhaps the easiest way to grow selected stock is by grafting chip buds onto nursery-run seedlings & plastic-wrapping the graft area." (Burtonsilvics)

Easily transplanted. Adaptable to most soil conditions, recommended for planting on deep, moist, permeable soils & medium to shallow upland silty-clayey loams, sandy loams, & loamy sands. Full sun, said to tolerate partial shade. Pruning tolerant. Sensitive to & intolerant of soil compaction. Tolerates pH as low as 4.5, & pHs higher than most tree species. Hedge is hardy as far north as Massachusetts but is said to succumb to winterkill in northeastern Colorado & the northern parts of Nebraska, Iowa, & Illinois, but this is not our local experience. Hardy to zone 4(5). Bureau Co has produced some 20-24" dbh specimens.

Description: Native deciduous, medium size tree to 30 or 40(-60)' tall, almost equal spread, broad, rounded or irregular crown, short, often crooked trunk, branches spreading, dense, overlapping, medium to coarse texture, single, straight, stout thorns at base of some leaves, colony forming, milky sap; characteristically tap-rooted; outer bark brown, inner bark orange, with vertical fissures & scaly ridges, young stems are glabrous, 0.5-1.0" spines cover branches, spines produce milky sap when broken, no terminal bud, lateral buds are pressed into bark, imbricate; wood is extremely hard & dense, fine-grained, sapwood is yellow-orange, aging to purple ultimately silvery gray then gray brown, very decay resistant; leaves simple, deciduous, alternate, oblong with a subcordate base & pointed tip, 2.0-5.0" long, length with petioles to 9.0", bright green color & glossy above, petiole & nerves minutely hirsute-pubescent beneath, milky sap appears at leaf scar when leaf is removed from stem; fall color yellow-green to golden, but unreliable; flowers dioecious, male & female on separate trees, male flowers long peduncled axillary racemes, 1.0-1.5" (2.5-3.8 cm) long on the

green fruit; no terminal bud; inner bark is orange; milky sap appears when leaves or spines are broken off" (UConn). "Species has spiny branches; long pointed leaves; large, spherical, yellow-green fruits; milky sap." (Ilpin) Large fruits are unmistakable (Weakley 2010).

Comments: status: phenology: Blooms 5-6. Fruit ripens 9-10. C3. Formerly widely planted as a living fence, & its use was promoted in the prairies where fencing material was at a premium. Wood very durable, very hard when cured, not a hell of a lot softer when green. The heartwood is yellow-orange when fresh cut, weathering to purplish when sealed, or silvery gray when exposed to the weather. 80 hedge apples to the bushel. 7,000 to 16,000 per pound (usda), averaging 14,000/lb (15,400 to 35,300 per kg, averaging 30,900/kg)

Male & female flowers are on separate trees. The heavy fruits tend to bow or bend the branches of the female trees into an arc, while the male trees have more vertical branches. With a little practice & some imagination, you can easily tell the sexes from the branch pattern. Female trees begin producing fruit at about age 10, & are most productive from age 25 to 65. Good seed crops every year. Isolated female trees may produce barren, seedless fruit when no males are near.

As the settlers pushed into the prairies in the 19th century, wood was in short supply, for cabins, fuel, & fencing, & purchased fencing material was expensive. The traditional zigzag fence required a lot of wood that simply did not exist, or could not be transported long distances. HEDGE helped make settlement of the Midwest grasslands possible, with the thorny twigs being the inspiration for barbed wire, & later, the old hedgerows provided posts for barbed wire. OSAGE ORANGE hedgerows were planted by the thousands of miles. Hedges around every quarter section were once common. In the 1870s, as barbwire became available, hedgerows fell out of favor. Still, 3,000,000 hedge posts were sold annually in Kansas as recently as the 1970s. Most farmers or recreational-mowing, knuckle-dragging, Neanderthalic, brain-donor, drooling road commissioners have eliminated hedgerows because of an assumed negative impact on crop yields. Our hedge on Hurd Road is one of the last hedges in Tampico Township. The largest hedge tree in Illinois is on the west side of State Route 78 in downtown Kewanee, about a block south of Good's Furniture.

In spite of its lack of utility & the contempt of the plant Nazis, more hedge has been planted than most other tree species in North America. Occasionally used in landscaping, or for shelterbelts, windbreaks, & hedgerows. Rich Maggi, IDOT Dixon, had hedge plantings installed on I-88. Grows best on moist soils, but tolerates extreme drought, heat, road salt, & urban air pollution. It does not tolerate soil compaction. Good for planting in harsh conditions, for historical purposes, or ornamentally for the interesting fruit & silhouette. It is more picturesque than beautiful, with strong form, texture, & character (Burtonsilvics). Fast growth rate, at age 7 species is 8' tall with 6' spread, in 20 years 20-40' (6-12m). Liabilities include hazards of the spines covering the stems & the fruit can be a litter problem in managed landscapes. Species suckers freely & may form an impenetrable barrier. Hedge resprouts from cut stumps & is often cut for fence posts. Winter cutting produces the most vigorous sprouts. A good species for acid mine spoils, tolerating pH to 4.5, but growth is better on less acidic soils. Hedge grows well on soils too alkaline for most trees.

"Not native this far north. It was extensively planted as farm hedge but these have now been destroyed. It persists as an escape in woods & thickets. It is occasional in the Sugar River sand area where it was never planted." (ewf55)

Associates: Trees provide shelter, cover, & good nesting sites for quail, pheasant, & other animals. Upland gamebirds, (northern bobwhite) & songbirds (red crossbill) & terrestrial furbearers (fox) eat the seeds. Frost ripened fruits are carried to a perch & are ripped to bits by squirrels while eating seeds. Fruit is somewhat eaten by livestock, but deaths are reported, with most deaths caused by choking on the fruit. Wild mammals & birds feed on the fruit & slowly, somewhat disseminate the seed. Seedlings & sprouts occasionally browsed. Fruits & browse are of low palatability. Fruits are up to 80% digestible. Seeds are dispersed by animals (in a limited manner cows, horses, & deer), gravity & water.

ethnobotany: Though rarely used in finished carpentry, (*most woodworkers treat it as firewood*), it makes beautiful furniture & paneling. The incredibly hard wood dulls all tools it contacts. All glue joints must be washed with acetone to remove the natural oils prior to gluing. Fresh heartwood is bright yellow, aging to orange, then purplish & ultimately silver-grey. Wood is used for fence posts & archery bows (*a famous bow wood*), hence the name *Bois d'arc,* as in *Bois d'arc* Township, home of Dr. Ronald Nelson, my Historical Geography of the American Grasslands instructor. The wood remains sound indefinitely in ground contact. *Bois d'arc* may also be in reference to the branches of the female trees that are naturally, permanently deformed under the heavy fruit load into a series of arcs.

A yellow dye was extracted from the wood by pioneers & Native Americans. Native Americans made an eye medication from hedge. Wood extractives are used for food processing, pesticide manufacturing, & dye making.

Wind pollinated. Species may cause hay fever, also dermatitis from milky sap. When bruised the fruit may produce a milky sap that can cause a skin rash & will blacken upon drying. The strong smelling fruit is said to repel cockroaches.

VHFS: [*Ioxylon pomiferum* Rafinesque, *I aurantiacum* (Nuttall) Rafinesque, *Maclura aurantiaca* Nuttall, *Toxylon pomiferum* Rafinesque ex Sargent] (*Ioxylon*, violet wood, from Greek ἴον, *ion,* violet, & ξυλον, *xylon,* wood, tree, a reference to the orange-yellow heartwood that weathers purple. *Toxylon*, bow wood, from Greek *τοξικόν, toxikon,* of or pertaining to the bow, & ξυλον, *xylon,* wood, tree, referring to the trees use in archery bow-making.)

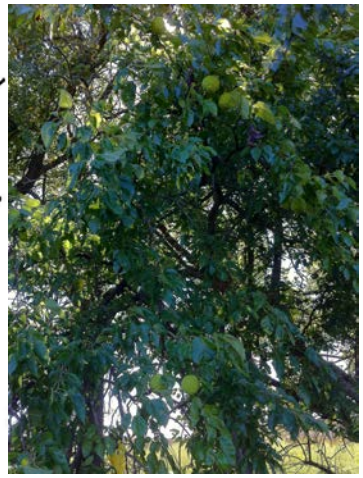
An intergeneric hybrid is known. x *Macludrania hybrida* André, is x *Macludrania* = *Cudrania x Maclura. Cudrania tricuspidata* (Carr) Bureau is a spiny shrub or small tree, native to China, Japan, & Korea. The *Maclura* parent is variety *inermis*. The hybrid is a small tree with yellowish furrowed bark & short, woody spines.

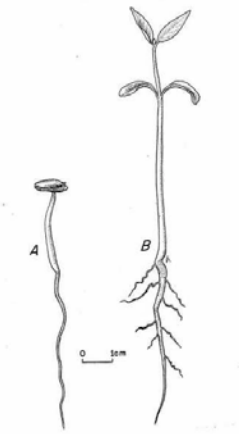
A few fruitless &/or thornless varieties of this hardy, tolerant native tree are available. With the botanical variety *inermis*, thornlessness is variable & unstable. Propagated from cuttings or scions taken high in the crown where twigs are thornless. (*Thornlessness in the upper part of the tree is probably an adaptation to browsing by megafauna, as in Ilex & Gleditsia.*)

'Double O' fruitless male forms with the thorns are only apparent on young stems.
'White Shield' recent release, the most thornless selection to date; a vigorous grower with glossy, deep green leaves.
'Wichita' upright, spreading tree with a dense canopy; one of the most thornless cultivars available.

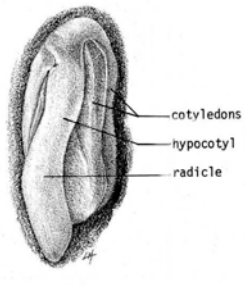
JH Carey, 1994. *Maclura pomifera*. In: Fire Effects Information System, [Online]. U.S Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2011, May 21]

http://www.na.fs.fed.us/spfo/pubs/silvics_manual/volume_2/maclura/pomifera.htm beware scanning & OCR.








Maclura pomifera

Line drawings courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Seedling drawing courtesy of the US Forest Service USDA-NRCS PLANTS Database. Seedlings, sawing Osage Orange lumber, & State Champion tree, Kewanee. Seed drawing L H courtesy of the US Forest Service USDA-NRCS PLANTS Database.

MORUS Linnaeus 1753 **MULBERRY** *Moraceae Morus* (MO-rus) from the Latin name *morum* or *morus,* for *Morus nigra,* the black mulberry of western Asia. The common name was originally based on Latin *morus*, as in Old English *more-berry* or Germanic *mōrbēre* , *mūrbēre*," but changed overtime with the *l-r* shift to mulberry. A genus of about 10-15 species of deciduous trees of warm temperate, subtropical, & tropical areas.

Morus rubra Linnaeus RED MULBERRY,
Habitat: Rich soil in river bottoms, lowland & upland woods, edges of fields. "A common native tree." (ewf55)
distribution/range:
Description: Small to medium, deciduous, native tree, umbrella-shape in age; very large leaves. Heartwood looks very much like the above species, *Maclura*.
Associates: Upland game birds, songbirds, & terrestrial furbearers eat fruit.
ethnobotany: Berries, red-black, edible, fruiting in summer (in several successive crops by one source). Berries available in summer, with good crop every 2-3 years. Used by the Iroquois to make a summer drink (Parker 1910) & for food (Waugh 1916).

Morus tartarica Linnaeus "The common introduced mulberry found in fence rows, the edge of woods, etc." (ewf55)

MYRICACEAE Blume 1829 **BAYBERRY FAMILY** *Myriaceae* Myrica'ceae (my-ri-KAY-see-ee) plants of the Candle-berry Myrtle family, from the genus name, *Myrica*, & *-aceae*, the standardized Latin suffix of plant family names. A family of 3-5 genera & about 55 species of trees & shrubs, nearly cosmopolitan.

COMPTONIA L'hertier ex Aiton 1789 **SWEET FERN** *Myricaceae Comptonia* (komp-TON-ee-a) After Rev. Henry *Compton*, 1632-1713, Bishop of London (or Oxford) & amateur horticulturist. A monotypic genus, a deciduous, suckering shrub of eastern North America. Its fossil distribution is much broader. [*Comptonia* Banks]

Comptonia peregrina (Linnaeus) JM Coulter SWEET FERN, aka SWEETFERN SAGE (peregrinus -a -um (pe-re-GREE-

of soil or fire exposes long buried seeds, allowing for germination. Fruits are very difficult to germinate because of a chemical inhibitor located in the testa. Soaking the fruits in giberillic acid enhances germination (Del Tredici 1977)" (in Ilpin)

cultivation: Optimum pH 5.6. Hardy to zone 2. Likes full sun.

Description: Low colonial, native shrubs of sun & sand, 1-3'. Strongly fragrant, deeply serrated leaves; orange-purple fall color; catkin bloom & bur fruit; 2n = 32. key features: "Leaves resinous dotted, fragrant when crushed, appearing after flowering." (Ilpin)

Comments: status: phenology: Blooms "There is a good sized patch, the plants growing closely together, on a brushy somewhat wooded hillside, in sandy soil ½ mile southeast of Rock Cut Forest preserve. Unknown elsewhere in the Co." (ewf55)

Comments: status: phenology: Blooms 4-5. C3.

Associates: Alternate host for Jack Pine blister rust. Host of several moth species, including *Dolba hyloeus* PAWPAW SPHINX MOTH. Fixes N2.

ethnobotany: Pollen may be allergenic. Leaves available late spring to autumn. The aromatic leaves are used to make a tea. The young nutlets are edible. Used by Ojibwa, Menominee, & Pottawatomie for beverage (Gilmore 1933; Smith 1923, 33). Used as medicinal beverage by Ojibwa & Pottawatomie (sm32, 33). Leaves used by Ojibwa & Menominee to line blueberry pails to prevent spoilage (sm32, 23). Used for ceremonial incense by Ojibwa (Gilmore 1933).

EP Darlington, 1949. Notes on some North American *Lepidoptera* reared on sweet fern (*Comptonia asplenifolia* Linnaeus) with description of new species. Transactions of the American Entomological Society 74: 173-185

P Del Tredici, 1977. The buried seeds of *Comptonia peregrina,* the sweet fern. Bulletin of the Torrey Botanical Club 104: 270-275.

MYRICA Linnaeus 1753 **SWEET GALE** *Myricaceae Myrica* My'rica (MY-ri-ka or mi-REE-ka) from classical Latin *myrīcē*, also *myrīca*, tamarisk, or its etymon the Greek μυρίκη, *myrikē,* a name for *Tamarix* or another aromatic shrub; further etymology is uncertain, but it is probably a loanword, perhaps ultimately cognate with tamarisk (OED); possibly from *myrizein*, to perfume, probably of Semitic origin; akin to the source of Greek *myrrha,* myrrh. A genus of 2 species of deciduous & evergreen shrubs of temperate & subarctic North America & Eurasia.

Myrica gale Linnaeus SWEET GALE, aka BOG MYRTLE, (*gale* (GAH-lee) Gale from old English *gagel, gagol*, strong, possibly related to Old Norse **gagl* in *gaglviðr*, which may be an old name for *Myrica gale,* from **gagl,* gale, & *við-r* wood (OED))

Habitat: Along lakes & steams where soil never dries out. Hardy to zone 2. distribution/range: Not in Illinois?

Description: Water-loving native shrub; blue green leaves & small birch-like catkins. distribution/range:

Culture: Softwood cuttings.

Associates: Larval host of *Phragmatobia fulginosa* RUBY TIGER MOTH, *Sphinx gordius* APPLE SPHINX MOTH, & *Sphinx poecila* POECILA SPHINX MOTH. Survives in nutrient poor bog environments by fixing atmospheric nitrogen.

ethnobotany: Used as dye for porcupine quills by Ojibwa (sm32).

NYSSACEAE AL de Jussieu ex Dumortier 1829 **TUPELO FAMILY**

NYSSA Linnaeus **TUPELO, SOUR GUM, BLACK GUM, GUM TREE** *Nyssaceae Nyssa* (NI-sa) from Linnaeus, after *Nyssa* (Nysa), a water nymph or naiad, for the first described species, *N aquatica,* a swamp species, as opposed to *N sylvatica*, of the woods. Deciduous trees. Fruit is a drupe, oval, 1-seeded.

Nyssa sylvatica Marshall BLACK GUM, aka SOUR GUM, PEPPERIDGE, "AWL-WOOD", TUPELO,

Habitat: Swamp borders & low wetlands, dry wooded slopes. On slightly acid soils. Hardy to zone 4.

distribution/range: Southern & northeast Illinois only.

Culture: Black gum or tupelo fruits ripen from August to October & the seeds can be adequately overwintered in cold storage. *Nyssa* has moderate embryo dormancy & cold moist stratification for 30 (rarely up to 120) days enhances germination. Scarification may be beneficial. Standard germination procedure is 28 days cold moist stratification followed by 21 days at 20/30º C. Nursery practice is spring sowing of cold moist stratified seed 1.25 - 2.5 cm deep with mulch. Planting beds should not be allowed to dry while submersion is to be avoided. Germination epigeal (yy92). Maceration is not necessary but is generally practiced. Embryo dormancy is variable between seed lots, with cold moist stratification requirements ranging from 30 - 120 days. Cold moist stratification at 40ºF. for 90 days generally produces

" The thinner lands are clothed chiefly with ...hickories and gums (*Liquidamber styraciflua* and *Nyssa* of two or three species)" (Short 1845).
Associates: Waterfowl (esp. wood ducks) & terrestrial furbearers eat fruit. Upland gamebirds eat fruit & buds. Songbirds (esp. robins & pileated woodpeckers) eat fruit. Aquatic furbearers eat fruit & wood. Deer eat twigs & foliage.
ethnobotany: Wood used for awl handles, mauls, & war clubs by Ojibwa because it will not check or split; called "awl-wood" (Gilmore 1933).
VHFS: [*Nyssa multiflora* Wang.]

OLEACEA Hoffmansegg & Kink 1813 **OLIVE FAMILY** A family of about 25 genera & 600-615 species of trees & shrubs, nearly cosmopolitan, but centered in Asia.

CHIONANTHUS Linnaeus 1753 **FRINGE-TREE, OLD MAN'S BEARD** *Oleaceae* (kee-on-ANTH-us) from the Greek *chion*, snow, & *anthos,* a flower, for the white flowers. Deciduous trees or shrubs.
Fruits ripen early fall, turning dark blue. The oily flesh can be removed by rubbing over a screen or fermenting for1-2 weeks. Seed coat is hard but brittle. Code D seeds need a period of warm moist stratification followed by cold stratification and will germinate after shifting back to warm (70º-40º-70º), and G chemical inhibitors. Sow in fall and wait 2 years. Alternately, mix seeds with moist vermiculite in a ziplock and keep warm for 3 months, checking periodically to keep vermiculite moist. refrigerate the bags for 3 months, Sow the seeds in flats and place them outdoors. (cu02)

Chionanthus virginicus Linnaeus FRINGE TREE, aka OLD MAN'S BEARD, ((vir-JIN-i-kus) of Virginia.)
distribution/range:
Small tree, deep green shiny leaves, fleecy white flowers, blue fruits. Zone 4

FRAXINUS Linnaeus 1753 **ASH** *Oleaceae Fraxinus* (FRAKS-i-nus) the Classical Latin name, *fraxinus*, ash tree. ASH may be a reference to the ash-colored bark of the new shoots of some species (Gray 1888). Deciduous trees. Used by beavers & squirrels. ASH is the larval host for TIGER SWALLOWTAIL butterfly & *Papillio glaucus* EASTERN TIGER SWALLOWTAIL.

Fraxinus americana Linnaeus WHITE ASH, aka AMERICAN WHITE ASH, ((a-me-ri-KAH-nus) American.)
Habitat: Rich moist loamy soil & any well-drained situation; common along streambeds. Bottomlands & wooded slopes. "Common in lowland woods & frequent in upland woods" (ewf55). distribution/range:
Adaptable. Needs full sun, well-drained to moist, fertile soils. Optimum pH 6.8. Hardy to zone 3.
9,920 (aes10) seeds per pound.
Description: Large tree up to 100', clean habit, fall color yellow to red to purple, yellow-maroon.
Important timber tree.
Associates: Larval host of *Sphinx canadensis* CANADIAN SPHINX MOTH. Post-hibernation host of *Euphydryas phaeton* BALTIMORE CHECKERSPOT BUTTERFLY. Waterfowl (esp. wood duck), upland gamebirds, songbirds, & small mammals eat seeds. Aquatic furbearers eat seeds & wood. Deer eat twigs & foliage.
ethnobotany: Wood used for fish spears (called "spear timber") & in canoe & snowshoe manufacture by Ojibwa (Gilmore 1933, Reagan 1928).

Fraxinus nigra Marshall BLACK ASH (*niger, nigra, nigrum* (NIG-er) from Latin for black; shiny black, as opposed to *ater*, matt black.)
Habitat: Deep cold swamps, low riverbanks, & any good soil (y). Low wet areas. "Uncommon, being found occasionally in bottomland woods." (ewf55) Optimum pH 6.8. Hardy to zone 2. Very hardy. distribution/range:
Description: Cold wetland, deciduous, native tree, leaves similar to walnut, ridged bark with corky texture, fall colors early to yellow.
Associates: ethnobotany: Used as medicinal plant by Ojibwa & Menominee (den29). Wood used to make splint baskets by Ojibwa & bows & arrows by Menominee (sm23, 32). Used for dye by Ojibwa (Gilmore 1933).

Fraxinus pennsylvanica Marshall RED ASH (*pennsylvanicus -a -um* of or from Pennsylvania. Pensylvania was an accepted alternative spelling throughout the 1700's. Plants named at that time may have a specific epithet without the second "n". In certain time frames, some authors consistently use the double "nn", as though it was the current fashion or rule, & past spellings were ignored.)

Fall planting or 60 - 90 days cold moist stratification is adequate. Seed given 60 days warm moist stratification then 90 days cold moist stratification germinated 92%. (dh87)

Deno (1991) cites contradictory information on the genus. Outdoor treatment with the associated oscillating temperatures is probably important (nd91). 17,300 seeds per pound.

Description: Very good form when young, very fast growth, yellow fall color at best.

Comments: status: phenology: Seed source eastern Iowa.

Associates: ethnobotany: Cambium probably collected in spring. Cambium used for food by Ojibwa (sm32). Also used for medicine. Wood used to make splint baskets & spoons, & wood of all three ashes used to make bows, arrows, snowshoe frames, sled, & cradleboards by Ojibwa (sm32).

Fraxinus pennsylvanica Marsh var **subintegerrima** (Vahl) Fern. GREEN ASH Facultative Wet

Habitat: Bottomland forests, banks of streams. Floodplain species. Tolerant of up to 2' of inundation for short periods. Tolerates drought & sterile soils. Nutrient load tolerance high, salt tolerance moderate, Siltation tolerance high, grows well in full sun. Shade tolerant. pH range 6.1-7.5, optimum pH 6.8. distribution/range:

Culture: Good germination after cold dry storage. Transplants readily & establishes well. Fast growth rate, 2.5-3.0' per year. Spreads quickly by seed. 6,000 (jfn04); 17,280 (aes10) seeds per pound

Description: Medium deciduous native tree to 60 feet.

Comments: status: phenology: Flowers April to May. Wetland restoration, rain gardens, streambanks, & upland slope buffers. "On stream banks & in river bottoms, perhaps less common than the preceding. (*F pennsylvanica* var *subintegerrima* (Vahl) Fern)" (ewf55 as *F lanceolata* Borkh)

Associates: Waterfowl, upland gamebirds, & songbirds eat seeds. Twigs & seeds provide forage for beaver & mice. Fallen logs provide habitat for herps & insects. Aquatic furbearers (esp. beavers) eat seeds & wood. Small mammals eat seeds. Deer eat seeds, twigs & foliage. Tree provides nesting habitat.

Fraxinus quadrangulata Michaux BLUE ASH, aka ROUND HEADED ASH, SQUARE-STEMMED ASH,

Habitat: Wooded slopes, limestone bluffs, & moist woods. "Known only on Kishwaukee River bluff at Camp Hillcrest above New Milford where there are a few trees." (ewf55). Hardy to zone 5. distribution/range:

Description: Medium deciduous, native tree to 70', "round headed ash is also found in wetland se Wisconsin." 4-winged branches, foliage similar to walnut.

Associates: Waterfowl (esp wood ducks), upland gamebirds, songbirds, and small mammals eat seeds. Aquatic furbearers (esp. beavers) eat wood & seeds. Deer eat twigs & foliage.

Fraxinus sp. *A'gimak',* snowshoe wood, Ojibwa, medicinal tonic.

SYRINGA Linnaeus 1753 **LILAC** *Oleaceae Syringa* New Latin, from Greek *syring-, syrinx*, *syrigx*, pipe or tube, for the tubular corolla, or the use of stems for pipe stems or whistles. A genus of about 20-23 species of shrubs from southern Europe & southeast Asia.

Syringa vulgaris Linnaeus LILAC (*vulgaris -is -e* (vul-GHA-ris) common, vulgar, from Latin *vulgāris*, from *vulgus*, the common people.)

distribution/range: Native of southeast Asia. Commonly planted, persisting & naturalizing by suckering around old dwelling sites. "Frequently persists about old dwellings & tends to spread." (ewf55)

PLATANACEAE Dumortier 1829 PLANE-TREE FAMILY A family of a single genus of about 7 species of trees of North America south to Central America & western Asia to southeastern Asia.

PLATANUS Linnaeus 1753 PLANE-TREE, SYCAMORE *Platanaceae Platanus* (PLA-ta-nus) New Latin from Latin *platanus*, plane tree, from Greek *platanos,* akin to Greek *platys* broad, possibly for the broad leaves, a name for *P. orientalis.* A genus of about 7 species of deciduous trees of North America south to Central America & western Asia to southeastern Asia.

Platanus occidentalis Linnaeus *WI SYCAMORE, aka AMERICAN PLANE TREE, BUTTONWOOD, PLANE-TREE,

Habitat: Bottomland woods, along streams, lakes, alluvial soils. In the milder parts of Illinois, a pioneer on upland old fields (Anon 1981). In northwest Illinois, confined to floodplains, some old trees 40-60" dbh. distribution/range:

Culture: Sycamore usually bears good crops every 1 or 2 years, & seed heads can be collected any time from fall

Germination also promoted by 90 days cold moist stratification at 40º F & light. (nd91) 115,008 (jfn04); 204,800 (aes10) seeds per pound.
Description: Large deciduous, native tree, sometimes 100'+, one of the largest trees in eastern North America; distinct white, brown, & gray-green mottled bark; key features: "Brown & gray mottled bark; nutlets arranged in round light brown heads on long drooping stalks." (Ilpin)
Comments: status: Special concern in Wisconsin. phenology: Blooms 4-5. Fruit ripens in November disperses from February through April. C3.

"Found sparingly in all our river bottoms especially on Kishwaukee River. It seldom exceeds 15 inches d.b.h." (ewf55)

In NW Illinois, it will survive when planted in uplands, but it grows naturally only in floodplains. Widely planted by IDOT in northern Illinois.
Associates: Wind pollinated, causes hay fever. Seeds dispersed by wind. Songbirds & terrestrial furbearers eat seeds. Aquatic furbearers eat seeds & wood. Good den tree.
VHFS: [*Platanus glabrata* Fernald, *P. occidentalis* L f. *attenuata* Sarg., *P. occidentalis* L var *glabrata* (Fernald) Sarg.]

RHAMNACEAE AL de Jussieu 1789 **BUCKTHORN FAMILY** A family of about 50-52 genera & 900-925 species, mostly trees, shrubs, & lianas, cosmopolitan. See misc. dicots.doc.

RUBIACEAE AL de Jussieu 1789 **MADDER FAMILY** Whatsamaddau?
See misc.dicots.doc.

RUTACEAE AL Jussieu 1789 **CITRUS** or **RUE FAMILY** A family of about 156 genera & 1800 species of trees, shrubs, vines, & rarely herbs, cosmopolitan. Many species have a strongly aromatic taste or fetid odor, & antispasmodic & tonic properties. Fruit capsular, or separating into its component 1- or 2-seeded carpels.

PTELEA Linnaeus **HOP TREE, STINKING ASH, WAFER ASH** *Rutaceae Ptelea* (TEL-ee-a) Greek πτελέα, *ptelea*, name for an elm, used by Dioscorides, the fruits or samaras are similar, the name possibly akin to Latin *tilia* linden. A genus of about 11 species of deciduous trees of North America. Fruits are 2-celled, 2-seeded samaras.

Ptelea trifoliata Linnaeus HOP TREE, aka SHRUB TREFOIL, WAFER ASH (*trifoliatus -a -um,* (tri-fo-lee-AH-tus) three leaved, or leaflets.) facu+
Habitat: Woodland edges, fencerows, tolerant of sand & clay soils. Thin soils over limestone. "Irregular in distribution but it is locally common, usually near streams as Rock River opposite Rockton & Kishwaukee River at Perryville road." (ewf55) distribution/range: In Ontario, it is a rare shrub of the dunes along Lake Erie.
Culture: 60 days cold moist stratification. Seeds need a cold, moist period followed by a warm, moist period followed by a 2nd cold, moist period, or sow outside & allow 2 years for germination (pm09). Moist cold stratify 90-120 days or dormant seed. 9,600 (pm02); 12,000 seeds per pound.

cultivation: Sun or shade. Drought tolerant. Optimum pH 6.5.
Description: Small, deciduous, native tree or shrub, (6-)15-20'; deep green trifoliate leaves, leaflets sessile; yellow fall color; cymes corymbous, flowers white, odorous, almost 0.5" diameter, 3-merous (also 4,5), followed by tan elm-like samaras in clusters, persisting through the winter; key features: "Branchlets are glabrous; fruit with odor of hops. Regarding flower -merous, it may be 3, 4 or 5." (Ilpin)
Comments: status: phenology: Blooms 5,6. C3. Landscaping, specimen or border plantings.
Associates: Butterfly host plant. HOP TREE is the larval host of the *Papillio cresphontes* GIANT SWALLOWTAIL & *P. polyxenes* BLACK SWALLOWTAIL.

ethnobotany: Sacred Menominee medicine (sm23). Bark is medicinal.

ZANTHOXYLUM Linnaeus PRICKLY-ASH, TOOTHACHE TREE *Rutaceae Zanthoxylum* (zanth-OKS-i-lum) (formerly spelled *Xanthoxylum*) from Greek ξανθὸς, *xanthos*, shades of yellow or yellow red, & ξύλον, *xylon*, wood, for the yellow wood of some species. Synonym of *Xanthoxylum*. Some species are luminescent under ultraviolet light. Sichuan pepper is derived from the pericarp of several Asian species. A genus of about 250 species of America, Africa, Asia, & Australia (apparently limited to large land masses starting with the letter A). Fruits capsular, 2-valved, 1- or 2-seeded. The sapwood of *Zanthoxylum clava-herculis*, HERCULES-CLUB, fluoresces pale yellow to light blue, the heartwood bright orange, under ultraviolet lights (Hoadley 1986).

Description: Thicket forming, deciduous, native shrub, 10-12', suckering prolifically, many prickles on stem; small ash-like leaves, strong citrus odor when bruised; yellow-red fall color; flowers dioecious, 4-merous, (or 5-merous), in small axillary clusters; small red fruit covering branches in September, fruit is reddish, aromatic capsule, 0.19" long, with one large black seed; key features: "Species has strongly aromatic foliage; branches & petioles are prickly. Regarding flower merous, it may be 4 or 5." (Ilpin).
Comments: status: phenology: Fruits ripe 9. C3.

"Roughs" along "the margins of 'sloughs,' and along the courses of small stream." *Z. americanum* Mill as *Zanthoxylum fraxineum* Willd. (Short 1845).
Associates: Pollinated by short-tongued bees, long-tongued bees, other *Hymenoptera, Diptera, Coleoptera, & Lepidoptera.* PRICKLY ASH is the larval host of *Papillio cresphontes*, Giant Swallowtail, *P. troilus*, Spicebush Swallowtail butterfly, & *P. polyxenes,* Black Swallowtail.

ethnobotany: Bark used as medicinal beverage by Menominee & Ojibwa (sm23, 32). Ojibwa sore throat medicine. Bark is sialagogue, stimulant, alterative, & emetic. (den28).
VHFS: [*Xanthoxylum americanum* Mill, *Zanthoxylum americanum* Mill f *impuniens* Fassett, *Z fraxineum* Willd, *nom illeg*]

SALICACEAE de Mirbel 1815 **WILLOW FAMILY** A family of 2 genera & about 435 species of trees, shrubs, & subshrubs, almost cosmopolitan.

POPULUS Linnaeus 1753 **POPLAR, ASPEN, COTTONWOOD** *Salicaceae* (PO-pu-lus) *populus* Latin people; the poplar, from the classical Latin name for *Populus alba*. Poplar from Middle English *poplere*, from Middle French *pouplier*, from *pouple, peuple,* poplar, from Latin *populus*. The word is said to be of Etruscan origin. (*Latin words of unknown origin are often said to be 'of Etruscan origin'. Other than tombstone inscriptions, little Etruscan writing survives.*) A genus of about 35 species of deciduous trees that is largely native to the northern temperate areas, having resinous buds, numerous stamens, incised bracts, & elongated stigmas, & that is well known in cultivation. *Populus* is the larval host of the RED-SPOTTED PURPLE, VICEROY, *Papillio glaucus* EASTERN TIGER SWALLOWTAIL, & the COMPTON TORTOISESHELL butterflies.

Populus alba Linnaeus SILVER POPLAR, aka WHITE POPLAR, (*albus -a -um* (AL-bus) from Latin white, *albus*, adjective, particularly a dull rather than a glossy white, or dead white; pale; bright, a general white.)
Habitat: distribution/range: Native of Europe.
Description: key features: "Leaves have silvery or white-wooly undersurface; seeds with cottony hairs; round petioles; leaves of two types -lobed & dentate" (Ilpin).
Comments: status: phenology: Blooms 4-5. C3. "A persistent escape to roadsides & railroad tracks." (ewf55)
Associates: Wind pollinated. Seed is wind dispersed. Ectomycorrhizal.

Populus balsamifera Linnaeus BALSAM POPLAR, aka *HACKMATACK, TACAMAHAC*, *Man'asa'di* (Ojibwa) (*balsamifera* (bal-sa-MI-fe-ra) balsam bearing, by inference, producing balsam, a fragrant gum or resin.)
Habitat: Bog margins. Hardy to zone 3. distribution/range:
Culture: Softwood cuttings.
Description: Fast-growing, deciduous, native tree, eventually forming a colony; bark yellow-green when young; leaf shiny green with white to tan underside; suds covered with fragrant sticky sap. key features: "Over wintering buds large & heavily coated with a yellow, gummy, strongly balsamic fragrant resin" (Ilpin).
Comments: status: phenology: Blooms 4. C3.
Associates: Known to chemically inhibit green alder (Chick & Kielbaso 1998).

ethnobotany: Resin used as medicinal plant by Ojibwa, Menominee, & Pottawatomie (sm32, 1923, 1933). Ojibwa medicine for heart trouble (den28). Leaf buds, resinous, aromatic, & expectorant (den28). Ojibwa charm (den28).
VHFS: [*Populus tacamahacca* Mill.]

Populus deltoides Marshall (or Bartram ex Marshall) EASTERN COTTONWOOD, aka NECKLACE POPLAR, CAROLINA POPLAR,
Habitat: Bottomland woods, along streams, moist prairies, volunteer on old surface mine spoils. "A common tree of river & creek bottoms & also extensively planted." (ewf55) distribution/range:
Description: Large, deciduous, native tree, up to 100'. key features: " Nearly black, deeply furrowed bark; flattened leaf stalks; cottony seeds" (Ilpin).

Habitat: Rich moist sandy soil, swamp borders, riverbanks, & hillsides. Disturbed woods. Full sun. Optimum pH 5.6. distribution/range:
Description: Erect, medium tall, deciduous, native tree, 50-65', fall color gold. key features: "Species has flattened leaf petiole; gray-green bark; seeds with cottony hairs." (Ilpin)
Comments: status: phenology: Blooms 4. C3. Longer lived than other aspens. Produces saw logs. "Not very common. Usually on wooded stream bluffs, Killbuck Creek, Kishwaukee River above New Milford & Sugar River west & north of Shirland." (ewf55)
Associates: Wind pollinated. Seeds are wind dispersed. Ectomycorrhizal. Used by grouse, prairie chicken, beaver, varying hare, deer, & moose.

ethnobotany: Cambium probably collected in spring. Cambium for food by Ojibwa (sm32). Roots used as medicinal beverage by Ojibwa (sm32).

Populus nigra Linnaeus BLACK POPLAR, aka LOMBARDY POPLAR, (*niger -gra -grum* (NIG-er) from Latin for black; shiny black, as opposed to *ater*, matt black.)
Habitat: distribution/range: Native of southern Europe.
Comments: status: phenology: Weakly spreading by suckers in planting areas. The Lombardy Poplar is a columnar form. The LOMBARDY POPLAR is an old stand by in home landscaping for people that want a quick screen of wind break. In northwest Illinois' landscape, very few trees have this silhouette. The tree is quick growing & short lived, but suckering individuals may persist around old home sites. "*P italica* Moench. LOMBARDY POPLAR Not an uncommon escape from ornamental planting." (ewf55)
Associates: Endo- & ectomycorrhizal.
VHFS: Variety *italica* Meunch. Introduced from Europe. Sterile sport, only staminate plants are known. Branches are strongly ascending & brittle, petioles are flattened.

Populus tremuloides Michaux QUAKING ASPEN, *Asa'di* (Ojibwa) (*tremuloides* like *tremulus*, the trembling or quivering poplar, from Latin *tremulus* trembling, quivering, shaking from *treměre,* to tremble, & -οειδης, *-oides*, like, resemble.)
Habitat: Moist, sandy soil, gravelly hillsides. Full sun. Optimum pH 5.6. Hardy to zone 1. distribution/range: Not unusual in north central & northwest Illinois.
Description: Erect, deciduous, native tree, fast-growing, colonial, to 50', bark greenish-white; fall color yellow to gold. key features: "Petioles are strongly flattened; whitish trunk; seeds with cottony hairs" (Ilpin).
Comments: status: phenology: Blooms 4-5. C3. Quick growing on most sites. Leaves tremble in slightest breeze. In wild occurs in large colonies. "Common on banks of streams, edges of woods, & invading old clearings & low prairies." (ewf55)
Associates: Wind pollinated. Seeds are wind dispersed. Endo- & ectomycorrhizal. Possibly fixes nitrogen. Important pulpwood tree. Good small bird cover. Used by ruffed grouse, sharp-tailed grouse, prairie chicken, beaver, varying hare, white-tailed deer, & moose. Deer browse the stems.

ethnobotany: Pollen is non-allergenic. Sap available in early summer. Used for food by Ojibwa (den28). Bark used as medicinal plant by Ojibwa (sm32). Ojibwa medicine plant for diseases of women, & noted for Tewa use for urinary system (den28). Bark is tonic & febrifuge (den28). Bark & bast fibers found at Ash & Canter's caves in Ohio.

Populus tremuloides, native stand, Tampico

Willow seeds are recalcitrant (hydrophilic) & can not be allowed to dry out & must be planted immediately upon harvesting as fresh seed pressed into moist soil. Plant immediately or store seed in a ziplock bag in the refrigerator for a few days.

Willows are the larval hosts for *Satyrium liparops* the Striped Hairstreak, *Satyrium acadica* Acadian Hairstreak, *Papillio glaucus* Eastern Tiger Swallowtail, Viceroy, Compton Tortoiseshell, Mourning Cloak, & Red-spotted Purple butterflies.

"Roughs" along "the margins of 'sloughs,' and along the courses of small streams" *Salix* spp. (Short 1845).

Salix alba Linnaeus WHITE WILLOW, aka EUROPEAN WHITE WILLOW, (*albus-a -um* (AL-bus) from Latin white, *albus*, adjective, particularly a dull rather than a glossy white, or dead white; pale; bright, a general white.)
"It occasionally escapes to steamsides from plantings but is not at all common here." (ewf55) distribution/range:
Description: key features: "Branchlets flexible, not brittle at the base; leaves white-silky; branchlets silky sometimes drooping" (Ilpin).
Comments: status: phenology: Blooms 4-5. C3.
Associates: Insect pollinated.

Salix amygdaloides Anderson PEACH-LEAFED WILLOW, aka PEACHLEAF WILLOW, (*amygdaloides* almond-like, *Amylgdalus)* Facultative Wet
Habitat: Sedge meadow species, tolerant of 0-18' flooding for short periods. Nutrient load tolerance low to moderate, salt tolerance moderate, siltation tolerance low to moderate. Partial to full sunlight. pH not available. Hardy to zone 4.
distribution/range:
Culture: Propagate from cuttings. Limited commercial availability.
Description: Small wetland, deciduous, native shrub or tree, up to 40'; peach-like leaves; small spring catkins.
Comments: status: phenology: Blooms April to June. C3. Useful in upper shorelines zones & streambank stabilization. "A streamside tree that is smaller & less common than *S nigra*." (ewf55)
Associates: Provides cover & nesting for songbirds, marshbirds, amphibians, & reptiles.

Salix bebbiana Sarg. BEBB'S WILLOW, aka BEAKED WILLOW, SMOOTH BEBB WILLOW, (for Michael Shuck *Bebb*, early northern Illinois botanist & willow specialist who lived near Seward, 1833-1895.)
Habitat: Bogs. Hardy to zone 2. distribution/range:
Culture: Softwood cuttings.
Description: Tall tree-like, native shrub, rugose deep green foliage. key features: " Leaves are nearly entire sometimes, glaucous & rugose beneath; variable in degree of pubescence." (Ilpin)
Comments: status: phenology: Blooms 5. C3. "A small tree that is not uncommon in the Sugar River area & is found occasionally in Kent Creek bottom & in northern Boone Co." (ewf55)
Associates: Usually bee pollinated. Upland game eats stems & buds. Provides cover for small birds & small mammals. Ectomycorrhizal
ethnobotany: Pollen may cause hay fever.

Salix candida Fluegge SAGE WILLOW,
distribution/range:
"A small shrub that is not uncommon in the boggy places in Coon & Kent creek bottoms but is more frequent in the boggy areas in northern Boone Co." (ewf55) Known from Irene Cull fen. Possibly reported from Spring Slough, Rock Falls.


Salix discolor Muhlenberg PUSSY WILLOW,
Habitat: Hardy to zone 3. distribution/range:
Culture: Softwood cuttings.
Description: Large, deciduous, native shrub with good show of male catkins, 1.75" long; winter buds black; male & female plants.
"A coarse shrub that is common in wet places." (ewf55)

Salix eriocephala Michaux DIAMOND WILLOW, aka HEART-LEAVED WILLOW, MISSOURI RIVER WILLOW,
Habitat: Lowlands & river valleys. Hardy to zone 2. distribution/range:
Culture: Softwood cuttings
Description: Large shrubby, deciduous, native willow.
VHFS: [*Salix rigida* Muhl.]

Salix exigua Nuttall SANDBAR WILLOW, (*exiguus -a -um* (eks-IG-ew-us) Latin adjective, little, small, weak, lowly, poor, narrow, insignificant.)
Habitat: Alluvial soils, often pioneering on bars & beaches (Yarnell), sandy shores of rivers & streams. Hardy to zone 3. distribution/range:
Culture: Softwood cuttings.
Description: Erect, deciduous, native shrub, 10-15', aggressive, fine texture, forming large colonies.
Comments: status: phenology: Colonies decrease in age & height from the center. Needs space. "A pioneering shrub mostly on running water but also found in dry places as the high bank of an old gravel pit near Camp Grant." (ewf55 as *S interior* Rowlee)
Associates: ethnobotany: Used for weaving baskets by Ojibwa (Gilmore 1933)
VHFS: [*Salix interior* Rowlee] Mohlenbrock lists f. *whelleri* [Rowlee] Rouleau

Salix fragilis Linnaeus CRACK WILLOW, aka BRITTLE WILLOW, (*fragilis -is* -e easily broken, fragile, brittle, from Latin fragilis, from *frag-* root of *frangĕre* to break, & *-ilis* adjectival suffix indicating capacity or ability, hence a property or quality.)
distribution/range: Introduced from Eurasia. "Commonly planted & frequently escaping to streamsides. Hybridizes freely with *S alba*." (ewf55)

Salix glaucophylloides Fernald BLUE-LEAF WILLOW, aka BLUE-LEAVED WILLOW; (*glaucophylloides* resembling grey-blue leaves.)
distribution/range:
"Frequent in the Sugar River area, also on Kent Creek at Fannan's crossing west of Rockford, in the Searle tract & on grove Creek at Seward Bluffs. Usually a coarse shrub." (ewf55)

Salix gracilis Andress WILLOW (*gracilis -is -e* slender, gracefully slight in form, from the Latin adjective, *gracilis -is -e*.)
Habitat: distribution/range:
Associates: ethnobotany: Used as medicinal plant by Pottawatomie (sm33). Densmore (1928) lists *Salix* sp. *Ozi'sigo'bimic,* as Ojibwa medicine for indigestion & utility plant.

Salix humilis Marshall PRAIRIE WILLOW, aka SMALL PUSSY WILLOW, UPLAND WILLOW,
Habitat: Prairies, open woods, & rocky slopes. "Common on high & low prairies & in sandy places. Abundant on the C. & N.W. Ry. west of Rockford where it shows great vegetative variations." (ewf55) Hardy to zone 3.
distribution/range:
Culture: Softwood cuttings. Transplants easily, BR.
Description: Deciduous, native shrub, 4.0-12" (4-12' in KRR); flowers dioecious, fruits are capsules 0.25-0.38" long, Associates releasing many plumed seeds, dispersed by wind. key features: "thick branchlets; pilose under surface of leaf; long petiole; leaves sometimes nearly entire." (Ilpin)
Comments: status: phenology: Blooms March to May. C3. Plants are of both sexes. One of many good native willows for planting; showy "pussy willows".
Associates: Early flowers attract native bees pollinated by long-tongued bees, short-tongued bees, *Diptera,* &

form, wet or dry soils, good display of 0.5" male catkins in spring.

Salix humulis

Salix lucida Muhlenberg SHINING WILLOW, (*lucidus -a -um* shining, glistening, reflecting, from Latin *lucid*, bright, shining, clear, transparent.)
Habitat: Bogs & wet sandy areas, not common. Hardy to zone 2. distribution/range:
Culture: Softwood cuttings.
Description: Wetland shrub to 10', very shiny green foliage.
Comments: status: phenology: Blooms May
"An uncommon coarse shrub willow that is very uncommon here, we having found it only in Coon Creek bottom & on the north branch of Kent Creek at Springfield avenue. It resembles S *pentandra* but the long tailed leaves are quite distinctive." (ewf55)
Associates: ethnobotany: Used as medicinal plant by Ojibwa (sm32). Bark included in kinnikinnik smoking mixture by Ojibwa (sm32).

Salix nigra Marshall BLACK WILLOW (*niger, nigra, nigrum* NIG-er; from Latin for black, blackness; shiny black, as opposed to *ater*, matt black.) Obligate
Habitat: Stream banks, lakeshores, & rich low woods (y), along streams. Floodplain species. Black willow tolerates periodic inundation up to 2' for short periods. pH 6.0-8.0. Nutrient load tolerance moderate to high. Salt tolerance low. Siltation tolerance moderate. Full sun. Hardy to zone 3. distribution/range:
Culture: Softwood cuttings. USDA (1997) says spreads by suckers???? Rapid growth rate, 3-6' per year.
Description: Lowland deciduous native tree of medium texture, up to 90'; flowers yellow green in April to May.
Comments: status: phenology: Blooms April to May. Our largest, tree-form, native willow. Often used in streambank stabilization, damaged stands regenerate quickly. "The largest & most common of our willow trees." (ewf55) Species used in upper shoreline zones & for streambank stabilization.
Associates: Provides nesting habitat for birds. Food source for morning cloak butterfly, larval food for *Satyrium acadica,* Acadian Hairstreak*,* songbirds, waterfowl, woodpeckers, squirrels, beaver, & deer.
ethnobotany: Fiber used for making bags, pouches, fishnets, & cord by Ojibwa, Menominee, Ottawa & Winnebago (Whitford 1941).

Salix pedicellaris Pursh. BOG WILLOW, (*pedicellaris -is -e* having a stalk, with a pedicel)
Habitat: distribution/range:
Description: Blooms April to May.
Associates: ethnobotany: Bark used as medicinal plant by Ojibwa (sm32).
VHFS: Mohlenbrock lists Illinois material as var *hypoglauca* Fern.

Salix pentandra Linnaeus BAY-LEAVED WILLOW, (*pentandrus -a -um* five stamens)
Introduced from Europe. "Planted in the Camp Grant area during the first World War & has shown a slight tendency to spread." (ewf55)

Salix petiolaris Sm. SLENDER WILLOW, aka MEADOW WILLOW, (*petiolatus -a -um* petioled, with a leaf stalk, with a

Salix serissima AUTUMN WILLOW, (*serissimus -a -um* New Latin superlative adjective, the latest, from the Latin adverb *serius*, later, too late, & *issimus -a -um*, superlative suffix.)
distribution/range:
Culture: Plant fresh seed or keep moist. Refrigerate clean seed in a ziplock bag until planting or starting other treatment (pm09).

SIMBARUBACEAE DC. 1811 **QUASSIA FAMILY**

AILANTHUS Desfais TREE-OF-HEAVEN *Ailanthus* tree of heaven, New Latin, from Amboinese *ai lanto*, or *Aylanto,* literally, tree (of) heaven, or tree of the gods; or Moluccan *ailanto*, or *aylanto*, sky tree; or Chinese *Ailanto*. Modern Latin *Ailantus*. Modern Latin *Ailantus*. A genus of 5 species native to Asia & Australia. Fruits are 1-celled,1-seeded *samarae*. Formerly in the *Xanthoxyleae* of the *Rutaceae.*

Ailanthus altissima (P Miller) Swingle TREE-OF-HEAVEN, aka CHINESE TREE OF HEAVEN, COPAL TREE, STINK TREE, TREE OF THE GODS
Habitat: distribution/range: Native of east Asia.
Culture: Control & elimination is advisable. Growth rate rapid. Seedling vigor high. Vegetative spread rate rapid. Seed spread rate rapid. 14,640 (usda) seeds per pound.

Tolerant of coarse, medium, & fine textured soils. Anaerobic tolerance none. CaCO3 tolerance high. Drought tolerance medium. Fertility requirement low. Salinity tolerance none. Shade intolerant (?). pH 4.9-7.5.
Description: roots minimum depth; bark; leaves; inflorescence panicles; flowers 5-merous; fruits samaras; N. key features: Large pinnate compound leaves, stout twigs >1cm thick, unpleasant odor of the crushed foliage. "Species has malodorous flowers; leaves up to 41 leaflets unpleasantly scented when crushed; leaves sometimes with few teeth near base." (Ilpin)
Comments: status: Invasive & banned in Connecticut. Prohibited in Massachusetts. Prohibited invasive species in New Hampshire. Class B noxious weed in Vermont. Considered invasive by many authors. phenology: Blooms 6-7 (5-6). C3. "… the only ratlike tree…" The flowers are very ill-scented, creating a nuisance if near humans. In the eastern US, this species is invading undisturbed forests, as well as disturbed areas.
Associates: Insect pollinated. Pollen causes hay fever. Endomycorrhizal. ☠ (Ilpin) Allelopathic, moderately toxic.
VHFS: [*Ailanthus altissima* (P Miller), *A glandulosa* Desf.]

STAPHYLEACEAE (DC.) Lindley 1829 **BLADDERNUT FAMILY** A family of about 5 genera & about 27 species of trees & shrubs, temperate Northern Hemisphere, especially eastern Asia. Formerly placed in the *Sapindaceae.*

STAPHYLEA Linnaeus BLADDERNUT *Staphyleaceae Staphylea* (sta-FI-lee-a) from Greek *staphylē*, a cluster, a bunch of grapes, for the fructification. A genus of 11 species of deciduous shrubs of temperate Eurasia & eastern North America. Fruits are capsules, 2-3-celled, thin, & inflated, seeds not ariled.

Staphylea trifolia BLADDERNUT, aka AMERICAN BLADDERNUT, (*trifolius -a -um* three-leaved.) fac
Habitat: Mesic & dry savanna, mesic woodland. Moist woods, thickets, rocky slopes, banks along streams; moist woods, wooded bluffs, along streams, thickets. Hardy to zone 3. distribution/range: West Asia & USA.
Culture: Seeds are recalcitrant. Promptly remove seeds from the husk, place in a ziplock bag & refrigerate until sown. Double dormant sow in permanent location in late fall or in galvanized flats in an unheated frame. Commercial growers recommend moist warm stratify (150 days) & moist cold stratify (90 days). Acid scarification is said to help. 6,800 (pm2002) seeds per pound.

Transplants easily.
Description: Attractive erect, deciduous, native shrub, (5-)10-15', suckering; leaves ternate, leaflets oval-acuminate, serrate, pale beneath, with scattered hairs; inflorescence short, pendulous raceme; flowers white 1" bell-like, 5-merous, perfect; fruits are showy 1.0-2.0" inflated bladders, lobed papery pods in fall & winter; with several spherical, hard seeds. key features: Opposite trifoliate leaves with serrulate margins are diagnostic. "Greenish striped branches; leaves pointed; terminal one long-stalked; flowers drooping; capsule inflated" (Ilpin).
Comments: status: phenology: Blooms 4,5,6. C3. A classic understory species. Landscaping, very shade tolerant colonial shrub with elegant white flowers & attractive papery capsules in winter. "The most remarkable feature of the plant is its large, inflated capsules, which are 3-sided, 3-parted at top; 3-celled, containing several, hard, small nuts or

THYMELAECEAE AL Jussieu 1789 **MEZEREUM OR THYMELAEA FAMILY** A family of about 45-53 genera & 500-800 species of mostly trees & shrubs, cosmopolitan, very diverse in Africa.

DIRCA Linnaeus 1753 **LEATHERWOOD, LEATHERBARK** *Thymelaeceae Dirca* of or belonging to the fountain of Dirce, New Latin, from Latin *Dirce*, *Dircæus,* a fountain near Thebes in Boeotia, from Greek Δίρκη, *Dirkē*. A genus of 3 species of shrubs of North America. Our eastern species is most closely related to *D. mexicana* Nesom & Mayfield of the mountains of western Mexico.

Dirca palustris Linnaeus LEATHERWOOD, aka AMERICAN MEZEREON, EASTERN LEATHERWOOD, LEATHERBARK, *MICOPY, WICOPEE, WICOPY,* MOOSEWOOD, ROPEBARK, *Djibe'gub,* first two syllables mean ghost or spirit (Ojibwa)
Habitat: Damp, rich woods, moist shaded situations along banks of streams, thickets, & woods. Hardy to zone 3(4).
distribution/range: Native to eastern North America.
Culture: Propagation by seed or by layering.
cultivation: Best in full sun; prefers moist, deep soils.
Description: Native, deciduous shrub or bush, 3.0-6.0' tall with equal width, multi-stemmed, dense, rounded habit, slow growth rate, medium texture; bark light greenish brown on stems, with white lenticels, very tough; stems slender & aromatic when crushed; leaves alternate, simple, deciduous, obovate, up to 3" long & 1.5" wide, margin entire, light green, young leaves pubescent, yellow fall color varying from tree to tree; flowers axillary, clustered in 3 or 4's, pale yellow, with a hairy, bud-like involucre, blooming early spring before the leaves emerge; fruit a gray to reddish drupe, 0.33" diameter, with 1 large brownish seed, ripening in mid summer. key features: "Flowers are in clusters of 2-4 tubular; drupe is green, yellowish, or red; jointed twigs & tough bark." (Ilpin) No terminal buds; lateral buds are hidden by petiole; lateral buds conical with 4 hairy scales; alternate leaf arrangement; yellow flowers; obovate leaf shape. The curiously flexible twigs & swollen nodes are distinctive (w12)
Comments: Blooms 4-5. C3. Landscape uses in naturalized area, including wet sites, or mass or group plantings. Very shade tolerant, (even in sugar maple woods). Plants in shade have horizontal branching & "character". This species was one of Jock Ingel's favorite plants. Jock had a specimen in his front yard, growing in the shade of the largest hemlock in Illinois.
"Uncommon. In ravines on the Kinnikinnick Creeks & in Kishwaukee River gorge. We know of it in Stephenson, Jo Daviess, Carroll, Rock Island & Lee Cos." (ewf55)
Associates: Species has no serious pest problems.
ethnobotany: "The tan-brown bark … was used by the native (sic) Americans for cordage; the common names refer to this property." (w07) Fiber used for cordage & weaving bags by Ojibwa, Menominee, Pottawatomie, & Winnebago (Gilmore 1929, sm23, 33, Whitford 1941). Used as medicinal beverage by Ojibwa & Pottawatomie (sm32, 1933). Ojibwa physic (den28) berries said to be narcotic & poisonous. Bark is purgative & emetic, vesicant when fresh. Bark maybe irritating to skin. Identified in Ohio Adena & rock shelter textiles (Whitford 1941).

Dirca palustris

TILIACEAE Linnaeus **BASSWOOD, WHITEWOOD, LINDEN, LINN, LINDENBLOOMS.**
Some authorities include *Tiliaceae* in a broadly defined *Malvaceae.*

Amphipyra pyramidea COPPER UNDERWING, *Bucculatrix thoracella, Coleophora albovanescens, Coleophora anatipennella, Cosmia trapezina* THE DUN-BAR, *Crocallis elinguaria* SCALLOPED OAK, *Epirrita autumnata* AUTUMNAL MOTH, *Erannis defoliaria* MOTTLED UMBER, *Euproctis chrysorrhoea* BROWN-TAIL, *Eupsilia transversa* THE SATELLITE, *Hemithea aestivaria* COMMON EMERALD, *Lymantria dispar* GYPSY MOTH, *Limenitis arthemis* AMERICAN WHITE ADMIRAL/RED-SPOTTED PURPLE, *Ceratomia amyntor* ELM SPHINX, *Mimas tiliae* LIME HAWK-MOTH, *Odontopera bidentate* SCALLOPED HAZEL, *Operophtera brumata* WINTER MOTH, *Orthosia gothica* HEBREW CHARACTER, *Phalera bucephala* BUFF-TIP, & *Ptilodon capucina* COXCOMB PROMINENT. Locally, *Tilia* is a larval host for the *Papillio glaucus* EASTERN TIGER SWALLOWTAIL.

Tilia americana Linnaeus BASSWOOD, aka AMERICAN BASSWOOD, AMERICAN LINDEN, LINDEN, LINN, WHITE WOOD, *BOIS BLANC, Wigub'imij (*Ojibwa)
Habitat: Rich, well drained soils, rich woods. Optimum pH 6.4. Hardy to zone 3. "A common forest tree often growing with maple. Most abundant & largest in Boswell woods in Pecatonica River bottom east of Shirland." (ewf55)
distribution/range:
Description: Stately, medium to large, deciduous, native tree to 60'- 80', tends to sucker profusely tightly around the base of the trunk; deep green leaves, fragrant yellow flowers in July; tan dry seeds on a tan winged pedicle, persist into early winter. key features: " Glabrous leaves; petioles without milky sap; glabrous, red winter buds; fruit is nut-like, dry, globose, indehiscent." (Ilpin)
Comments: status: phenology: Blooms 5-7. C3. Adaptable. At one time widely planted in IDOT District 1 as a roadside tree. The profusion of basal suckers makes the 55-mile per hour *Gestalt* of this species possible.
Associates: Larval host *Buccalatrix improvisa*, RIBBED COCOON MAKER MOTH & *Coleophora tiliaefoliella*, both monophagous, *Ceratomia amyntor* ELM SPHINX MOTH, *Limenitis arthemis* RED-SPOTTED PURPLE BUTTERFLY, *Paonias excaecata* BLINDED SPHINX MOTH, *Paonias myops* SMALL-EYED SPHINX MOTH, & *Papilio glaucus* EASTERN TIGER SWALLOWTAIL. Upland game birds eat seeds. Terrestrial furbearers (esp. rabbits) eat seeds & bark. Small mammals (esp. eastern chipmunks) eat seeds. Deer eat twigs & foliage. Good den tree. Used by cotton-tailed rabbit & chipmunk. Evidently very tall, tree-climbing rabbits. BASSWOOD is particularly susceptible to damage by Japanese beetles.

ethnobotany: Flowers produce a mildly spicy honey. Young twigs, buds, & sap available for food in spring. Sap, young twigs & buds used as food by Ojibwa & Iroquois (den28, Gilmore 1933, Parker 1910). The inner bark was a principal source of fibrous material in the Great Lakes region in aboriginal times (Jones 1937). Saplings (or suckers ?) peeled in spring by Menominee (sm23). Inner bark used for cordage (also very important for subsistence). Trunks used for dug out canoes, bark fiber used for thread, cordage, weaving bags, & baskets, tying wigwam framework, sewing mats, fish nets, snowshoes, & ropes by Ojibwa, Pottawatomie, Menominee, Sauk-Fox, & Winnebago (Gilmore 1933, sm23, 33, Whitford 1941, den28). Identified archaeologically in Ohio Hopewell & rock shelter textiles (Whitford 1941). Identified in cord in copper beads from glacial kame site in Canada (Ritchie 1948) & carbonized bark at Juntunen site (Yarnell 1964). Also, found growing at several archaeological sites.

The flowers & young leaves are edible. Young flowers are mildly sweet, the fruit somewhat sweet & sticky. Linden tea was used to reduce anxiety.

The wood is pale brown to white, soft, with fine close grain. The wood has been used to manufacture woodenware, wagon boxes, & furniture. It is light, strong, & resonant, & has been used in solid body electric guitars. It is particularly adapted to carving.
VHFS: The species has leaves glabrous beneath, except in axils of the veins. Mohlenbrock lists var *neglecta* (Spach) Fosberg, leaves pubescent beneath with stellate hairs, a rare variety from rich woods in some northern cos. (also known as *T neglecta* Spach.)

"Improved" selections are available.

ULMUS de Mirbel 1815 **ELM FAMILY**

CELTIS Linnaeus 1753 **HACKBERRY, HAG-BERRY, HOOP ASH** *Ulmaceae* (*Cannabaceae*) *Celtis* (KEL-tis) Greek name for a tree; or from Classical Latin, Pliny's name for *Celtis australis* Linnaeus, the "lotus" of the ancient world. A genus of about 100 species of trees, shrubs & woody vines widely distributed in tropical, subtropical, & temperate regions. *Celtis* species are larval hosts for *Asterocampa celtis* HACKBERRY EMPEROR, *Asterocampa clyton* TAWNY EMPEROR, *Polygonia interrogationis* QUESTION MARK, & *Nymphalis antiopa* MOURNING CLOAK butterflies. ADULT HACKBERRY & TAWNY EMPERORS feed on tree sap, rotting fruit, dung, & carrion.

Members of the *Ulmaceae* family have a strong tendency toward mineralization of the cell walls with calcium carbonate or silica & possess crystals of calcium oxalate. *Celtis* provide wildlife habitat, forming sheltering thickets, &

inhibitors, & I seeds require scarification because of an impermeable seed coat. Dormant seeding outdoors usually gives good germination in late spring. Pot seedlings as soon as cotyledons expand. Pot in 6-7" deep pots as sp develops a taproot & fibrous roots. (cu02)

Celtis laevigata Willdenow SUGAR BERRY, aka SOUTHERN HACKBERRY (lie-vi-GHA-ta; for the smooth leaves.) Eastern USA; not susceptible to witches broom, gray platy bark, zone 5.

Celtis occidentalis Linnaeus HACKBERRY, aka HACK TREE, NETTLE TREE, NORTHERN HACKBERRY, SUGARBERRY (*occidentalis -is -e* of the west, western, from Latin *occidens*, *occidentis*, noun, the west, towards the setting sun, & *-alis,* adjective suffix of or pertaining to, as opposed to *orientalis -is -e,* of China.) Facultative (-)
Habitat: Rich, moist well drained soils. Gravelly & rocky, wooded hillsides & riverbanks, low woodlands, riverbanks, floodplains, sandy or rocky areas. Bottomlands & lakeshores. Floodplain & flatwoods (1st terrace) species.
distribution/range:
Culture: Hackberry ripens in September to October. Maceration is not essential but is reported to aid germination. Recommendations include 12 weeks (2 -3 months) cold moist stratification at 3-5º C, followed by warm moist stratification at 20/30º C with light. Scarification & GA3 have been used with other *Celtis* species. Common practices include fall sowing of untreated seed & spring sowing of cold moist stratified seed. Seed can be broadcast or sown & covered by 1.25 cm of firm soil. Mulch is recommended. Germination epigeal (yy92). 60 - 90 days cold moist stratification or fall plant (dh87). Fall sow or cold moist stratification 60-90 days at 40ºF & spring plant. Sulfuric acid to soften seed coats prior to stratification may hasten germination. (hk83). Best planted outdoors in the fall, or 60 days cold moist stratification. (pm09). 4,160 (aes10) seeds per pound.

cultivation: Easy transplant as small bare root tree or larger B&B. Medium growth rate, 22-30" per year. Seedlings intolerant of submergence, but mature trees tolerant of spring flooding. Optimum pH 7.0.or 6.6-8.0. Nutrient load tolerance moderate. Salt tolerance moderate. Siltation tolerance low to moderate. Shade tolerant.
Description: Medium to large, deciduous, native tree up to 80', with a vase-like form resembling an elm; gray corky bark; very tough tree, with cross-grain wood, resistant to wind & ice damage, leaves elm-like, lopsided pinnipalmately veined, resembling those of NETTLE, *Urtica*; inconspicuous greenish yellow flowers in March to May followed by a pea-sized, dark purple, cherry-like thin fleshed, drupaceous fruit; N =?
Comments: status: phenology: Blooms March to May. The fruit mature in late summer. Useful in wetland restoration, upper shoreline zones, upper buffer slopes, & stream bank stabilization. Valued as an ornamental street tree because of its drought tolerance & its tolerance of urban air pollution. The species is weakened, then stunted, & ultimately killed by annual prescribed burns. Our specimen adjacent to a field of side oats is terminal. Though the wood is attractive when finished (*we have a hackberry floor in our master bedroom*), it is difficult to work, similar to elm, & often marketed with elm.

*"*In Illinois, the richest groves, interspersed though the prairies, are constituted mainly of the same kind of trees which indicate the best soils in the Western States, as … hackberry, (*Celtis crassifolia*,)" *Celtis occidentalis* L *as C crassifolia* Lam. (Short 1845).

"A common woodland & fence-row tree that is variable as to leaf cutting & other secondary characters." (ewf55)
Associates: Upland gamebirds, songbirds (esp. mockingbirds, robins), terrestrial furbearers, & small mammals eat fruit. Deer eat twigs & foliage. Used by sapsucker & cedar waxwing. Exclusive larval food source of *Asterocampa clayton,* Hackberry Butterfly & *Libytheana bachmannii,* Snout Butterfly. Also larval host for *Automeris io,* Io Moth, *Asterocampa celtis,* Hackberry Emperor, *Nymphalis antiopa,* Mourning Cloak Butterfly, *Polygonia interrogationis,* Question Mark Butterfly, & *Sphinx drupiferarum,* Wild Cherry Sphinx Moth.

The winter silhouette is very similar to an America Elm. The esthetic value of this tree may be diminished by witches' broom, which is the combined result of powdery mildew fungus, *Sphaerotheca phytoptophila* & the HACKBERRY WITCHESBROOM GALL MITE, *Eriophyes*.

ethnobotany: Berries available in autumn. Good seed (actually fruit) crop most years. Berries were used for food by Sauk-Fox (Smith 1928). An excellent street tree in a town of 400 people. My childhood home in Manlius had two large hackberries in the front yard as street trees. The drooping branches brought some tasty but scantily fleshed ripe fruit into reach. The ripening & fallen fruit has a pleasant, date-like aroma, & as a child, we would put on hard soled shoes to loudly pop the fallen fruits upon on the sidewalk. Shoes were optional in warm weather in & around Manlius.
VHFS: Highly variable species, with east to west geographic varieties, var *canina* (Raf) Sarg, var *occidentalis*, var *pumila (*Pursh) Gray.

Celtis tenuifolia Nuttall DWARF HACKBERRY, aka GEORGIA HACKBERRY,

trees, rarely shrubs of temperate & boreal regions of the Northern Hemisphere, with the greatest diversity in central & northern Asia.

Ulmus americana Linnaeus AMERICAN ELM, aka WHITE ELM, facw-
Habitat: Deep, rich, moist loam, bottomlands, & streambanks (y), rich woods, wooded floodplains. Moist soil on plains, morainal hills, bottomlands, margins of swamps & streams. Adaptable. Optimum pH 6.5. Hardy to zone 3. distribution/range:
Description: Tall vase-shaped, deciduous, native tree, to 60-80-120' (rarely today); "butter yellow" fall color. key features: "No corky wings on branches. Leaves strongly asymmetrical at base; not rough to touch. Flowers in fascicles." (Ilpin)
Culture: Medium-fast grower. Seed count not available.
Comments: status: phenology: Blooms February to April. C3. Very susceptible to Dutch Elm Disease. The intermingled vase-like branching created a cathedral-like appearance on many streets in my hometowns & some streets in Princeton, once known as Elm City, which suddenly became very open, sunny, & hot. There are still a few, old, very isolated trees on roadsides planted by IDOT decades ago, but their numbers slowly dwindle, every year. Still being planted in some wetland restorations. Several disease resistant selections are in the market. "A common native tree used in roadside & ornamental planting." (ewf55)
Associates: Wind pollinated, causing hay fever. Seeds are samaras, wind dispersed. Waterfowl eat seeds (esp. wood ducks). Upland gamebirds & songbirds (esp finches) eat seeds & buds. Terrestrial furbearers (esp. rabbits, tree squirrels) eat buds, seeds, & wood. Aquatic furbearers eat buds, seeds, & wood. Deer eat twigs & foliage. Used by wood duck, purple finch, red squirrel, & turkeys.

ethnobotany: Bark used as medicinal plant by Pottawatomie (sm33). Bark used for roofing winter houses by Ojibwa (Gilmore 1933). Local 'shroom' hunters claim dead elms are good locations to find morel mushrooms.

Ulmus americana, Greenville Twp, Bureau County

Ulmus rubra Muhlenberg SLIPPERY ELM, aka RED ELM, *Gawa'komic,* (*ruber, rubra, rubrum* red, ruddy, from Latin *ruber, rubr-,* & *rufus* red, ruddy, Latin *ruber*, Greek *erythros* red, Sanskrit *rohita* red, reddish, *rudhira* red, bloody.) fac
Habitat: Bottomlands, stream banks, rich, moist hillsides, & rocky ridges & slopes. Woods, often in disturbed areas. Hardy to zone 2. distribution/range:
Description: Less regular form, deciduous, native tree with larger leaves, yellow fall color.

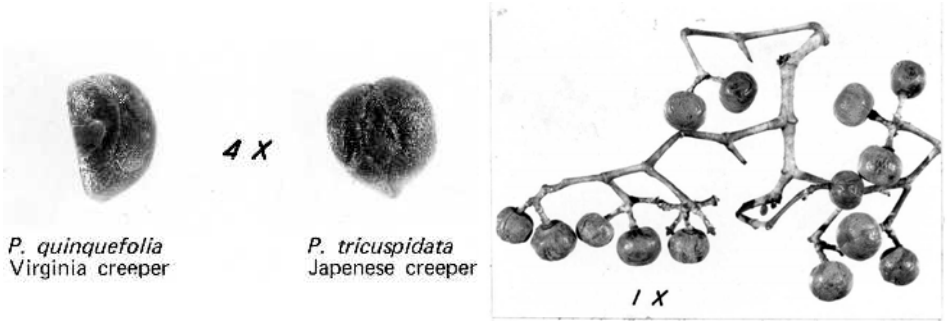
"Less common than the preceding (*U americana*) & likely to be found in situations that are more moist." (ewf55)
Comments: status: phenology: Blooms February to April.
Associates: Some resistance to Dutch Elm disease.

ethnobotany: Cambium easier to collect in spring. Cambium used in a medicinal beverage by Menominee (sm23) & utility plant. Cambium used by Iroquois for food (Hunter 1823a). Used by Ojibwa & Pottawatomie, for medicine (sm32, 1933). Ojibwa sore throat medicine. Noted for laxative, food, & utility use (den28). Bark used for boxes & baskets by Pottawatomie, to cover wigwam sides by Ojibwa & Pottawatomie, & for fiber by Menominee (sm23, 32, 33). Identified in Ohio Hopewell fabrics by Whitford (1941).
VHFS: [Formerly *Ulmus fulva* Michx]

VITACEAE AL de Jussieu 1789 **GRAPE FAMILY** *Vitaceae* Vita'ceae (vi-TAY-see-ee) plants of the Vine family, from

PARTHENOCISSUS Planchon VIRGINIA-CREEPER, WOODBINE, CREEPER *Vitaceae Parthenocissus* (par-then-o-KIS-us) virgin's vine, from Greek παρθένος, *parthenos,* a virgin & Latin *cissos, cissi,* from Greek κισσός, *kissos,* ivy, from the common name, VIRGINIA CREEPER. Virginia was named after Queen Elizabeth I, the virgin queen. A genus of about 10 species of deciduous climbing vines of temperate Asia & North America. The tendrils attach themselves to a substrate with adhesive, foot-like pads at their end. Fruits are 2-celled berries, cells 1- to 2 seeded.

The introduced *Parthenocissus tricuspidata* (Siebold & Zuccarini) Planchon, BOSTON-IVY, with 3 leaflets, is known from Illinois.



Photos courtesy US Forest Service.

Parthenocissus inserta (A Kerner) K. Fritsch VIRGINIA CREEPER, aka GRAPE WOODBINE, WOODBINE, (*insertus -a -um* connected, supported, referring to the mode of attachment)
Habitat: Woods & thickets. In se USA, maritime thickets, rich alluvial forests, roadsides, & dumps; rare (Weakley).
distribution/range: Maine to Washington, south to Virginia, Missouri, Texas, to California. Occasional in the north ¼ of Illinois, rare elsewhere.
Culture: propagation:
asexual propagation:
cultivation:
bottom line:
greenhouse & garden:
Description: Leaves (3-) 5 (-7)-foliolate, only a few leaves on a plant 3-foliolate, leaves usually glossy green above; tendrils few-branched, usually lacking adhesive disks (though sometimes swollen at the tip); inflorescence without a well-developed central axis, the dichotomous branches relatively equal, the inflorescence therefore corymbiform, as wide or wider than long, with 2-3 main branches; berries 8-10 mm diameter; key features: " Tendrils are without disks (Ilpin). Tendrils are without disks, inflorescence ending in 2 diverging clusters, leaves shiny green above (fh).
Comments: status: phenology: Blooms May - July. C3. Red fall color; flowers are somewhat showy.

"Less common & less likely to be high climbing. Leaves glossy above & leaflets often 3; tendrils mostly without discs; inflorescence with two divergent branches; seeds 3 or 4. (*P. inserta* (Kerner) K. Fritsch)" (ewf55 as *P. vitacea* (Knerr.) AS Hitchc.)
Associates: ethnobotany:
VHFS: Often listed as *Parthenocissus vitacea* (Kern.) AS Hitchc. [*Ampelopsis quinquefolia* (L) Planch var *vitacea* Knerr, *Parthenocissus inserta* (A Kerner) C Fritsch, *P inserta* (Kerner) Fritsch f *dubia* Rehder, *P quinquefolia* (L) Planch var *vitacea* (Knerr) LH Bailey, *P vitacea* (Knerr) Hitchc f *dubia* (Rehder) Fern, *Psedera vitacea* (Knerr) Greene, *Vitis inserta* Kerner] In some sources, it is K Fritsch, some C Fritsch.

Parthenocissus quinquefolia (Linnaeus) Planchon VIRGINIA CREEPER, aka AMERICAN IVY, CREEPER, ENGELMANN'S IVY, FALSE GRAPE, FIVE FINGER, FIVE FINGER CREEPER, FIVE FINGER IVY ,FIVE-LEAVED IVY, WOODBINE, *Manido'bima'kwud* (Ojibwa) (*quinquefolius -a -um* (kwing-kwee-FO-lee-us) with 5 leaves, or leaflets) facu
Habitat: Mesic to dry savanna & woodlands. In the se USA, swamp forests, bottomlands, maritime forests & thickets, rock outcrops, mesic forests; common (Weakley 2010). distribution/range:
Culture: Macerate, then float seed, dormant seed or moist cold stratify 60 days. "Collect fruits after they have turned bluish black by hand-stripping from vine. Extract seeds from pulp & air-dry. Store in sealed containers at 42º. Stratify in moist sand or peat for 60 days at 41 degrees. Sow seed in fall or stratified & sow in spring." (lbjwfc) Seeds need maceration & 60 days cold moist stratification at 40ºF, 35% relative humidity in sand, drenched with fungicide. (Davis & Kujawski, 2001) "Seeds can be sown in the fall or preferably in the spring after stratification. Drilling & covering with about 3/8 inch (1 cm) of soil or mulch is recommended. Optimum planting density is 10 plants per square foot (0.1. sq m). Virginia creeper can also be propagated from hardwood cuttings or layerings." (Gill & Pogge 1974) Growth rate rapid. Seedling vigor medium. Vegetative spread rate moderate. Seed spread rate moderate. 18,367 (usda); 30,000 (jfn04); 30400 (aes10) seeds per pound. Commercially available.

asexual propagation: Cuttings. The easiest way to propagate is by hardwood or semi-hardwood cuttings, or by layering in the fall (lbjwfc). Five inch woody & soft cuttings, several nodes, in perlite root readily. (Davis & Kujawski, 2001)

cultivation: 2700 to 19,000 plants per acre. Tolerant of medium to fine textured soils. Anaerobic tolerance none. CaCO3 tolerance medium. Drought tolerance high. Fertility requirement low. Fire tolerance low, able to resprout. Salinity tolerance medium. Shade tolerance intermediate. pH 5.0-7.5. Sun, partial shade, & sun. Tolerates most soils & climates. Clay soil tolerant. Hardy to zone 3.
Description: Native, deciduous, woody vine, clinging by adhesive pads, vigorous, climbs over most everything; leaves (3-) 5 (-7)-foliolate only a few leaves on a plant 3-foliolate, palmately compound, usually dull above; fall color red-purple; tendrils many-branched, usually with numerous adhesive disks (though young shoots may not have the disks yet formed); inflorescence with a well-developed (zigzag) central axis, the dichotomous branches very unequal, the inflorescence paniculiform; flowers green (green/brown); followed by clusters of blue grape-like fruit; berries 5-7 mm diameter. key features: Tendrils with adhesive disks; inflorescence with a central axis, leaves dull green above (fh)

"This is by far the more common in discing of the tendrils & the number of seeds are the criteria. It is often high climbing; the tendrils have discs; leaves dull, always with 5 leaflets; inflorescence with a central axis; seeds 1 to 3. A pubescent form is frequent." (ewf55)
Comments: Blooms 7,8. Fruits ripen in October. Ground cover, useful in naturalizing fences, rock piles, etc., plant near walls, screens, & arbors. The large quinate leaves have a brilliant red-burgundy fall color, often turning before the trees. Sometimes used as a shading vine on masonry buildings, the leaves helping reduce air conditioning costs. The adhesive gads do not penetrate masonry or mortar. Species may climb to 50 feet or more.

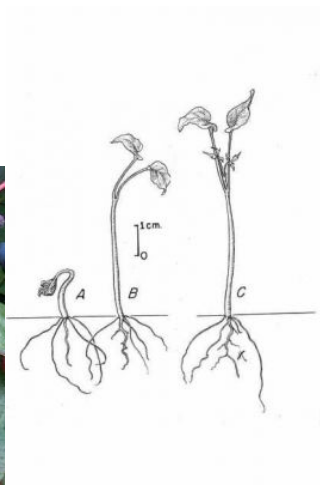
My parent's house in Manlius had VIRGINIA CREEPER growing on the north & east side. Jock Ingles' father had nursery shade structures covered with this species.
Associates: Larval host for *Alypia octomaculata* Eight-spotted Forester Moth, *Darapsa myron* Virginia Creeper Sphinx Moth, *Deidamia inscriptum* Lettered Sphinx Moth, *Eudryas grata* Beautiful Wood-nymph Moth, *Eumorpha pandorus* Pandorus Sphinx Moth, *Hyles lineata* White-lined Sphinx Moth, & *Sphecodina abbottii* Abbotts Sphinx Moth. Berries are an important winter food for birds, including chickadees, nuthatches, mockingbirds, catbirds, finches, flycatchers, tanagers, swallows, vireos, warblers, woodpeckers, & thrushes. Vine covered trees & buildings attract small birds, including sparrows. Walnut tolerant.

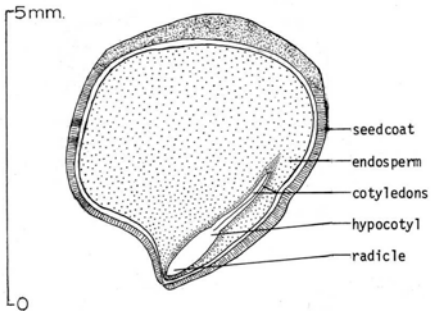
ethnobotany: ☠ The sap, leaves, & berries of this plant contain raphide crystals of calcium oxalate, which may cause contact dermatitis & an allergenic reaction in some people. The oxalic acid content of the berries makes them toxic (highly toxic?) to humans & other mammals. Symptoms include nausea, abdominal pain, bloody vomiting, diarrhea, dilated pupils, headache, sweating, weak pulse, drowsiness, & twitching of face.

Year round or starvation food. Cambium used as food by Ojibwa (den28). Root is a mythological food (sm32).
VHFS: [*Parthenocissus quinquefolia* (Linnaeus) Greene] [*Ampelopsis quinquefolia* (L) Michx, *Hedera quinquefolia* L, *Parthenocissus hirsuta* (Pursh) Graebn., *P. quinquefolia* (L) Planch. f. *hirsuta* (Pursh) Fernald, *P. quinquefolia* (L) Planch. var *hirsuta* (Pursh) Planch., *P. quinquefolia* (L) Planch. var *quinquefolia, P. quinquefolia* (L) Planch. var *saint-paulii* (Koehne & Graebn ex Graebn) Rehder, *P. saint-paulii* Koehne & Graebn ex Graebn, *Psedera quinquefolia* (L) Greene, *Vitis quinquefolia* (L) Lam]

M Coladonato, 1991, *Parthenocissus quinquefolia*. In: Fire Effects Information System, [Online]. U.S Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available:

JD Gill & FL Pogge, 1974. *Parthenocissus* Planch Creeper, In: CS Schopmeyer, Ed Seeds of woody plants in the United States. Agric Handb 450. Washington, DC: US Department of Agriculture, Forest Service: 568-571.





Parthenocissus quinquefolia

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VITIS Linnaeus 1753 **GRAPE** *Vitaceae Vitis* (VEE-tiss) from Latin name for grape vine, *vitis, vitis* f. vine, or a centurions staff; possibly Celtic *gwyd*, a tree or shrub; see also *Vitex,* chaste tree, Greek *oisos,* chaste tree, *itea* willow, *in-, is* tendon, sinew, muscle. *Vitis* is a genus of about 65 species of deciduous, woody climbers of the temperate regions of Eurasia & North America. Vines climb by means of curling tendrils. Fruit is a berry, 1-celled, 1(2)- to 4(-6) seeded, with bony seeds. Grape sugar contains less carbon than common sugar. The acid in the grapes is tartaric acid. 15,200 (aes10) seeds per pound for *Vitis spp.*

Wild grapes are an important part of any habitat. Species are larval hosts for *Alypia octomaculata* Eight-spotted Forester Moth, *Amphion floridensis* Nessus Sphinx Moth, *Darapsa myron* Virginia Creeper Sphinx Moth, *Deidamia*

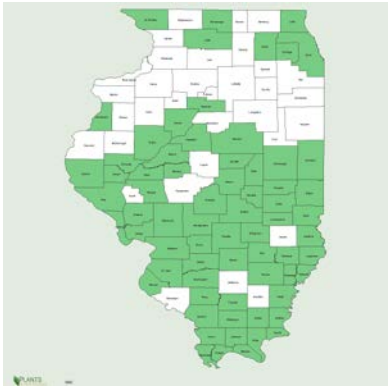
bellied Woodpecker, Tufted Titmouse, White-throated Sparrow, Wood Duck, Yellow-bellied Sapsucker, Eastern Cottontail, Raccoon, Red Fox, Striped Skunk, & Virginia Opossum. White-tailed Deer eat the leaves & stems.

*NOX OH *Vitis,* GRAPEVINES are prohibited noxious weeds in Ohio when growing in groups of 100 or more & not pruned, sprayed, cultivated, or otherwise maintained for two consecutive years.

http://michiganflora.net/genus.aspx?id=Vitis

Photo courtesy Clarence A Rechenthin @ USDA NRCS Texas State Office, USDA-NRCS PLANTS Database

Vitis aestivalis Michaux *ME SUMMER GRAPE, aka BLUELEAF GRAPE, PIGEON GRAPE, SILVERLEAF GRAPE, (aestivalis -is -e (ee-STIV-ah-liss) from Latin aestivus -a -um of summer, relating to summer, often in reference to flowering in summer.)



Habitat: Rocky woods. In Michigan, thickets, forests (usually rather dry), fencerows, sandy hillsides & dunes. In the se USA, forests & woodlands, mostly upland (w12b).
distribution/range: Occasional to common throughout Illinois.
Culture: propagation: By seed or cuttings. Growth rate rapid. Seedling vigor low. Vegetative spread rate moderate. Seed spread rate slow. No known commercial source.

Seeds germinate poorly in nature & accumulate in the seedbank, germinating only when light & temperature conditions are favorable. In a West Virginia study, germination rate averaged 19 percent after 11 years of soil storage (Wendel 1981).
asexual propagation: Selections best propagated from green cuttings or layering.

"The most successful method at Quicksand Plant Materials Center was greenhouse propagation. One year-old vine material was collected & cut into single-node pieces. The outer stem material was peeled back slightly near the base of the cutting, dipped in fungicide (Captan/Vitavax) & a rooting hormone (indolebutyric acid) - Hormodin #3), & stuck in flats & peat pots of 1:1:1 peat, perlite, vermiculite. Material was kept moist & warm. After material rooted, it was planted to the field. Collections made in the winter of 1993 will be rooted in the greenhouse & planted to a raised bed in the field. Estimated growth in woody beds will be one to two growing seasons, depending on the growth.

Harvesting, Storage & Shipping: Storage Requirements: Cool-moist conditions.

Estimated Propagule Storage Potential: Cuttings must be stored in cool, moist conditions such as wet newspaper, sphagnum moss, peat, or sawdust. Ideally, cuttings should be processed soon after harvest (within 2 to 3 days). If cuttings were to be sown directly outside, they could probably be stored for 2 to 3 months in moist sawdust or sphagnum in temperatures just above freezing." (Anonymous, 2001)

cultivation: 170-300 plants per acre. Tolerant of course to medium soils. Anaerobic tolerance low. $CaCO_3$ tolerance medium, but does not tolerate highly calcareous soils. Drought tolerance high. Fertility requirement medium. Fire tolerance low. Salinity tolerance none. Shade tolerant but plant in full sun. pH 5.3-7.0. Zones 5-7.

bottom line:

greenhouse & garden:

Description: Native, deciduous, woody vine, multiple stems, climbing 15-20', spreading 8-15' ; 16" minimum root

at least along the principal veins; leaf margins with shallow, obtuse teeth usually not ciliate, the sinuses between lobes (if any) broadly angled or rounded." "Most leaves are very shallowly lobed & shallowly toothed, compared to the jagged-toothed & often deeply lobed leaves of *V. riparia*, our commonest species. Deeply lobed leaves are uncommon & found only on vigorously growing shoots." (rvw11)
Comments: status: Endangered in Maine. phenology: Blooms May - June(July). Berries ripen in September - October. In St Louis, harvest grapes for wine in September. C3. "Less common than the others, being most frequent in Sugar River sand area, but it also grows in Kishwaukee River gorge." (ewf55)
Associates: Flowers are attractive to & pollinated by bumblebees & honeybees. Grapes are available on the vines from mid-August to mid-March, with fallen fruits most abundant in November. Ripe fruit attracts hornets & wasps. Wild turkeys eat tendrils & fruits. Over 80 species of birds & animals eat the fruit, including songbirds, gamebirds (Cardinal, Cedar Waxwing, Northern Bobwhite, Pine warbler, Ring-necked Pheasant, Ruffed Grouse, Scarlet Tanager, Wild Turkey), & furbearers (Gray Squirrel, Fox Squirrel, Striped Skunk, Opossum, Raccoon, Red Fox, Gray Fox, Coyote, & Black Bear). Vines provide escape & nesting cover for songbirds. Exfoliating bark is used in nest building. Tolerates rabbits & deer browsing foliage. Deer may browse foliage in spring & summer & fallen leaves in fall.

ethnobotany: Fruits are edible & used to make wine. The official state grape of Missouri. Said to have been cultivated by the Cherokees.
VHFS: The Norton wine grape is a hybrid selection bred from *V aestivalis*. The species has several desirable traits including lower acidity, a vinifera-like flavor profile, good tannin structure, & good disease resistance. The Norton Grape was propagated by Dr. Daniel Norton near Richmond Virginia in 1835. It is said to be the oldest American grape variety commercially grown today. The vine grows well in the Midwest, producing a robust, dry red wine. The selection is also known as 'Cynthiana'.

Anonymous, 2001. Propagation protocol for vegetative production of plug + transplants of *Vitis aestivalis* plants; USDA NRCS - Quicksand Plant Materials Center, Quicksand, Kentucky. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 11 March 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

JH Carey, 1994. *Vitis aestivalis*. In: Fire Effects Information System, [Online]. U.S Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2012, March 11]

J Mooney, 1992. History, Myths, & Sacred Formulas of the Cherokees. Historical Images. ISBN 0-914875-19-1.

http://michiganflora.net/species.aspx?id=2805

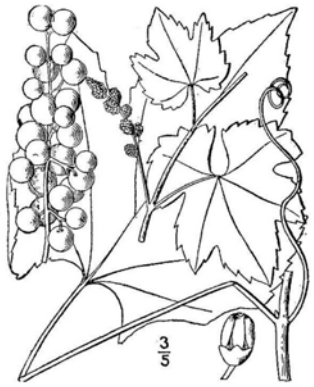
http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/a702/vitis-aestivalis-norton.aspx

GW Wendel, 1981. Longevity of summer grape seed stored in the forest floor. Wildlife Society Bulletin. 9(2): 157-159.

MICHIGAN FLORA ONLINE. AA Reznicek, EG Voss, & BS Walters. February 2011. University of Michigan. Web. March 11, 2012. http://michiganflora.net/genus.aspx?id=Vitis .

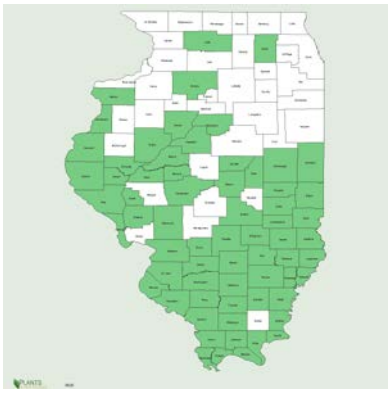
Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Photo Robert H Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image

Vitis aestivalis Michx var **bicolor** Deam SUMMER GRAPE, aka SILVER-LEAF GRAPE,
Habitat: Rocky woods. In the se USA, "forests & woodlands, mostly upland" (w12b). distribution/range: Occasional throughout Illinois.
Culture: propagation: From seed & cuttings. Growth rate rapid. Seedling vigor low. Vegetative spread rate moderate. Seed spread rate slow. No known commercial source. 17,000 (usda) seeds per pound.
asexual propagation:
cultivation: 170-300 plants per acre. Tolerant of course & medium textured soils. Anaerobic tolerance low. CaCO3 tolerance medium. Drought tolerance high. Fertility requirement medium. Fire tolerance low. Salinity tolerance none. Shade tolerant. pH 5.3-7.0.)
bottom line:
greenhouse & garden:
Description: Native, deciduous woody vine, climbing to 30'; berries black; key features: Petioles are glabrous or nearly so (Ilpin). "The only native wild grape in Illinois with leaf undersides that are bright white, hairless, & glaucous" (Hilty)
Comments: status: phenology: Blooms May - June. Berries ripen in September - October. C3.
Associates: Wild turkeys eat tendrils & fruits.
ethnobotany:
VHFS: In Britton & Brown (1913) this is *Vitis bicolor.* [*Vitis aestivalis* Michx var *argentifolia* Fern, *V argentifolia* Munson ex LH Bailey, *V bicolor* J Le Conte, nom illeg, non *V bicolor* Raf, *V. lecontiana* House]
http://www.illinoiswildflowers.info/trees/plants/silver_grape.html

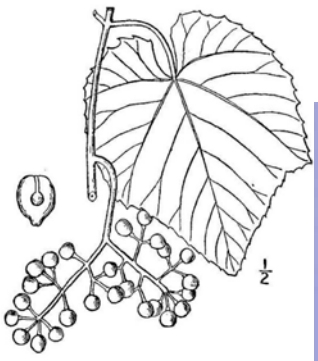


Vitis aestivalis bicolor

Vitis cinerea (Engelm) Engelm ex Millard GRAYBARK GRAPE, aka DOWNY GRAPE, FLORIDA GRAPE, GRAYBACK GRAPE, HELLER'S GRAPE, SWEET GRAPE, SWEET WINTER GRAPE, WINTER GRAPE, (*cinereus -a -us* ciner'eus (sin-AIR-ee-us) ash-colored, ashen-grey, like ashes, from Latin *cinerāceus,* ashy.)
Habitat: Low woods & thickets. In the se USA, hammocks, most forests (w12b).
distribution/range: Occasional in the southern ¾ of Illinois, rare elsewhere. Illinois is at the north edge of sp range. New York to Nebraska, south to Florida & Texas.
Culture: propagation: Propagate by seeds & cuttings. Growth rate moderate. Seedling vigor low. Vegetative spread rate moderate. Seed spread rate slow. 14,000 (usda) seeds per pound. No known commercial sources.
asexual propagation:
cultivation: 170-300 plants per acre. Tolerant of coarse to medium textured soils. Anaerobic tolerance low. CaCO3 tolerance medium. Drought tolerance high. Fertility requirement medium. Fire tolerance low. Salinity tolerance none. Shade tolerance intermediate. pH 5.0-7.4.
bottom line:



ethnobotany: Fruit is edible.
VHFS: Illinois has var *cinerea.* Variety *baileyana* (Munson) Comeaux in se USA forests & woodlands, mostly bottomlands; common.





Vitis cinerea

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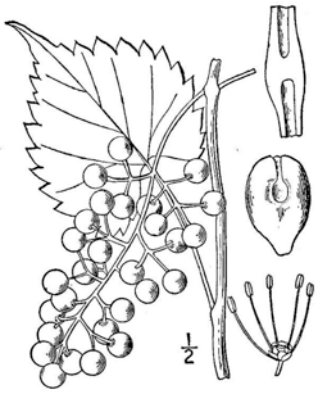
Vitis cordifolia Michaux FROST GRAPE, aka GRAPE, *jo'minaga'wunj* (*cordifolius -a -um* from Latin with the heart-shaped leaf) Now included in *V. vulpina.*
Associates: ethnobotany: Ojibwa food & medicine (den28).
Line drawing courtesy of Kentucky Native Plant Society.

Vitis cordifolia

dry (w12b). distribution/range: Maine to southern Michigan, south to northern Georgia, northern Alabama, & northern Mississippi. Rarely escaped from cultivation (or introduced) into waste ground in Illinois, Jackson Co. Introduced in Wisconsin. In Michigan species barely ranges north into southern Michigan; some collections, including all those north of the middle of the Lower Peninsula, are escapes from cultivation (rvw11)

Culture: propagation:
asexual propagation:
cultivation:
bottom line:
greenhouse & garden:

Description: plant key features: Leaves felted on the lower surfaces, but not cobwebby or merely silvery-glaucous. "Underside of fully expanded leaf blades densely & evenly covered with a persistently adherent rust-colored tomentum concealing the entire surface between the veins; stems regularly with tendrils (or peduncles) at 3 or more consecutive nodes; ripe fruit at least 15 mm in diameter (Reznicek et al 2011)

Comments: status: Special Concern in Kentucky. phenology: Blooms May - June. Berries ripen September - October. C3.

Associates: ethnobotany:

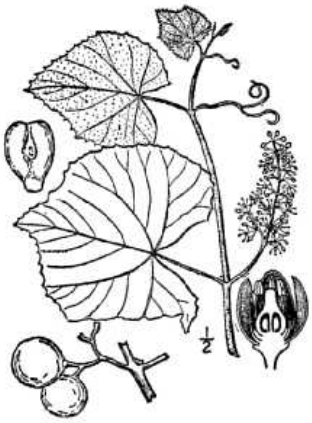
VHFS: [*V. labrusca* var *labrusca*, *V. labrusca* var *subedentata*] *Vitis labruscana* is a horticultural strain originating from *Vitis labrusca* L (Ilpin)

Concord grapes are a cultivar derived from *V labrusca* by Ephraim Bull in Concord, Massachusetts in 1849. It was one of 22,000 seedlings Bull was evaluating. The original plant is still growing at his former home. The pollen parent may be the European wine grape, *V. vinifera* or possibly Catawba, which is one half *V. labrusca*.

Catawba grapes are red hybrid grapes used for wine, juice, jams, & jellies. It is probably a cross of *V labrusc*a & *V vinifera.* Known from as early as 1802 or 1801 in North Carolina, its origins are obscure. The name is a reference to the Catawba River or the Catawba Indians.

Very good in its way
Is the Verzenay,
Or the Sillery soft & creamy;
But Catawba wine
has a taste more divine,
More dulcet, delicious & dreamy
from Ode to Catawba Wine, Henry Wadsworth Longfellow.

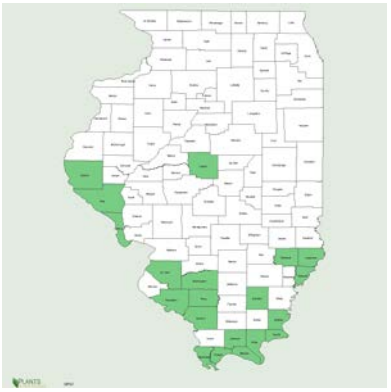
Niagara grapes are also derived from *V. labrusca.* The Niagara grape was created in 1868 in Niagara Co, New York by CL Hoag & BW Clark crossing Concord grapes with white Cassady grapes. It is used as a table grape, & for wines, jams, & jellies, & is the leading green grape grown in the United States.



Vitis labrusca

Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst, USDA-NRCS PLANTS Database. 2nd seed photo Courtesy of

Vitis palmata Vahl *IN CATBIRD GRAPE, aka CAT GRAPE, *KATZENREBE*, RED GRAPE,
Habitat: Swamps & low woods. In the se USA, floodplain forests & riverbanks (w12b). distribution/range: Southern ¼ of Illinois, plus Adams, Calhoun, Logan, & Pike cos.



Culture: propagation:
asexual propagation:
cultivation:
bottom line:
greenhouse & garden:
Description: plant key features:
Comments: status: Rare in Indiana. phenology: Blooms May-July. C3
Associates: ethnobotany:
VHFS: [*Vitis rubra* Michx]

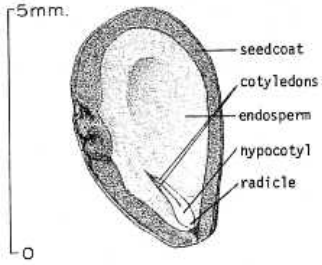
Vitis palmata

Line drawing courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Photo Robert H Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image

Vitis riparia Michaux RIVERBANK GRAPE, aka FROST GRAPE, *UFERREBE, VID AMERICANA, VIDEIRA-AMERICANA*, (*riparius -a -um* of river banks, from Latin *riparius*, frequenting banks of streams or rivers, riverside.) facw-
Habitat: Location determined by perch selection of whatever animal eats & passes the seed. Rich thickets, alluvial soil, riverbanks, low woods, fence rows, & sand hills. "Perhaps our most common wild grape." (ewf55) In the se USA, "forests & woodlands, mostly moist to wet" (w12b). distribution/range:

Culture: 60 days cold moist stratification (pm09). Seeds germinate after about 60 days of cold moist stratification (Heon et al. 1999). Macerate, dormant seed or moist cold stratify (90 days). Growth rate moderate. Seedling vigor low. Vegetative spread rate moderate. Seed spread rate low. 13,445 (gni); 14,500 (usda); 15,200 (pm) seeds per

intermediate. pH 6.1-8.5 (usda), or soils circum neutral, pH 6.8-7.2. Fast growing, long lived. Flood, disease, & insect tolerant.
Description: Woody, deciduous native vine, twining, climbing to 35(45') or more, multiple stems; flowers cream-yellow (green); berries black; key features: Petioles are glabrous; larger fruit (Ilpin). Reddish-brown, exfoliating bark; small, loose spikes of yellow-green, fragrant flowers; & bluish-black berries are the plant's showy characteristics. "Mature leaf blades green or yellowish green beneath, not glaucous, with sparse or no cobwebby hairs; leaf margins with teeth various but acute & minutely ciliate in common species, without lobes or (usually) with acute sinuses between lobes. Lobes of leaf well developed, at least on later leaves of the season, pointed forwards; margins with acute teeth, minutely ciliate; ripe fruit glaucous; common throughout Michigan." (rvw11)
Comments: status: phenology: Blooms 5,6. C3. Collect seeds in se Wisconsin in September (he99). May seem aggressive in an unburned landscape. Seeds source nursery & home woods.
Associates: Fruits are eaten by upland gamebirds, songbirds, waterfowl, mammals, & other wildlife. Attracts as many types of wildlife than any other species of plant.
ethnobotany: Fruits are edible & available in August into autumn. Early fruits are sour, becoming milder later. Twigs used as medicinal beverage by Ojibwa (sm32). Ojibwa (after frost), Menominee, Sauk-Fox, & Iroquois used fruit for food (sm23, Waugh 1916). Fruits were dried for winter use. Ojibwa also used sap for medicine (sm32) *Vitis* sp. used as medicinal plant by Ojibwa (Gilmore 1933). Known from several archaeological sites.
VHFS: Formerly *Vitis vulpina*? The species blooms May to June, has petioles glabrous, berries 8-12 mm in diameter, occasional to common. Variety *praecox* Engleman, blooms April, petioles glabrous, berries 6-7 mm in diameter, occasional in sw cos. of Illinois. Var *syrticola* (Fern & Wieg) blooms May-June, petioles densely hairy, low woods, rare, scattered throughout state. [*Vitis riparia* Michx var *praecox* Engelm ex LH Bailey, *V riparia* Michx var *syrticola* (Fern & Wieg) Fern, *V vulpina* L subsp *riparia* (Michx) RT Clausen, *V vulpina* L var *praecox* (Engelm ex LH Bailey) LH Bailey, *V vulpina* L var *syrticola* Fern & Wieg]





Vitis riparia

Photo Bill Summers, USDA-NRCS PLANTS Database. - Not copyrighted image. Seed photo Steve Hurst, USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed diagram courtesy US Forest Service, USDA-NRCS PLANTS Database. - Not copyrighted

Vitis rotundifolia Michaux MUSCADINE, aka BIG WHITE GRAPE, BULLACE, HICKMAN'S GRAPE, *MOSCATA, MUSCADINERBE,* MUSCADINE GRAPE, SCUPPERNONG, SCUPPERNONG GRAPE, SOUTHERN FOX GRAPE, *VIGNA MUSQUÉE, VITE MOSCATA*, The common name Muscadine is for a resemblance to the Old World Muscat grape. It has a coincidental similarity to Algonquin Indian root word *Mukode'*, meaning prairie, reflected in such names as Mascoutah, Illinois, Muscatine, Iowa, Muskoda, Minnesota, or the Mascouten (Mascoutin) Indians. Muscatine is also said to be from Siouan tongue meaning fire island. Subgenus *Muscadinia.*
Habitat: Open woods. In the se USA, var rotundifolia grows in "dry upland forests (especially sandy or rocky), other forests, swamps, dunes, roadsides, thickets" (w12b). distribution/range: Native sw & se of Illinois.
Culture: propagation: Growth rate moderate. Seedling vigor low. Vegetative spread rate moderate. Seed spread rate

cultivation: Tolerant of medium to fine textured soils. Anaerobic tolerance medium. CaCO3 tolerance medium. Drought tolerance medium. Fertility requirement medium. Fire tolerance low. Salinity tolerance none. Shade tolerance intermediate. pH 6.0-8.0.) Moist rich soil, partial shade. High potash, acidic soils.

bottom line:

greenhouse & garden:

Description: Native, woody, deciduous vine, vigorous, high-climbing or prostrate, growing to 90 ft or more, multiple stems; bark not exfoliating; leaves, large, round, shiny with broad, blunt teeth; flowers yellow, green; berries shiny, purple-black to bronze. key features: Bark is adherent, leaves never deeply lobed.

Comments: status: phenology: Blooms Fruit ripens in mid September & October & promptly drops.

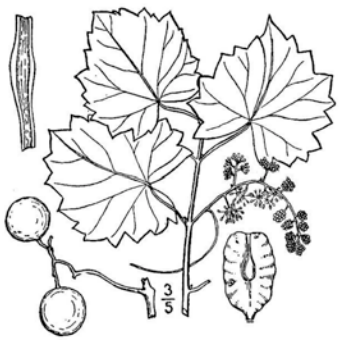
Muscadinia is a subgenus in *Vitis,* or molecular phylogenetic study warrants its recognition as a genus.

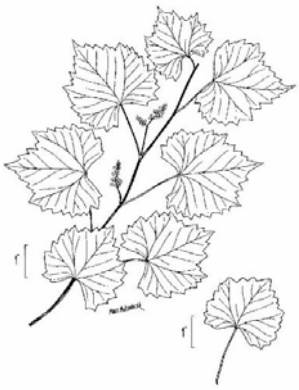
Associates: Provides food for large mammals, food & cover for small mammals, & food for upland birds.

ethnobotany: Berries make good jelly. Popular in the se USA as a table grape & a source of a distinctive wine (w10).

VHFS: The SCUPPERNONG is a large, greenish, bronzish, or "white" variety of *V. rotundifolia.* The berries are up to 1.5" diameter & are commonly used in jam, jelly, & wine. The name is a reference to the Scuppernong River in North Carolina. Historical references date to the 1500s. One of the oldest known cultivated grape vines is a 400 year old Scuppernong on Roanoke Island. The variety grows where temperatures seldom fall below 10ºF. When grown in Florida, Scuppernongs are said to yield more fruit than the Miami Gay Pride parade.

Muscadinia is basal to the rest of the genus. It differs with tendrils simple; bark adherent on all but the largest stems, with prominent lenticels; pith continuous through nodes; leaves relatively small & coarsely toothed, never deeply lobed. (w10) Weakley (1012b) calls this *Muscadinia rotundifolia* (Michaux) Small.





Vitis rotundifolia

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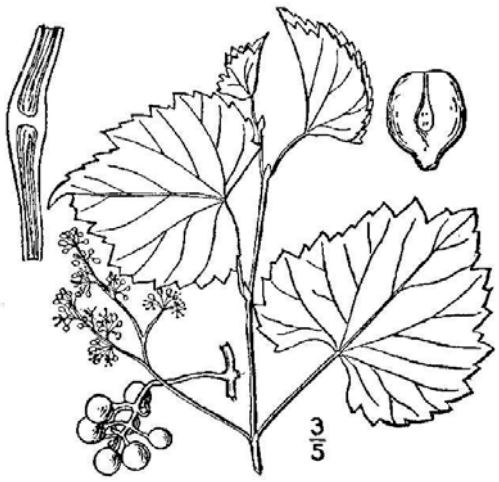
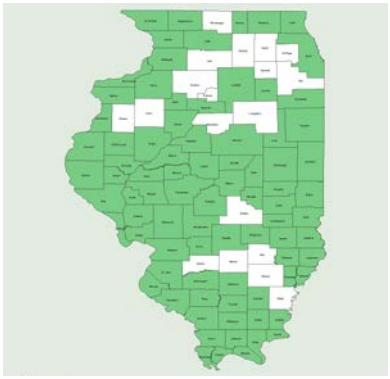
Habitat: Rocky banks; gravel beds & bars along streams; hills. In Michigan, lowland to upland forests, especially along borders; thickets, fencerows, river banks; shores & dunes (rvw11) distribution/range: In Illinois, very rare, Jackson & Union cos.
Culture: propagation:
asexual propagation:
cultivation:
bottom line:
greenhouse & garden:

Description: key features: "Mature leaf blades green or yellowish green beneath, not glaucous, with sparse or no cobwebby hairs; leaf margins with teeth various but acute & minutely ciliate in common species, without lobes or (usually) with acute sinuses between lobes. Lobes of leaf well developed, at least on later leaves of the season, pointed forwards; margins with acute teeth, minutely ciliate; ripe fruit glaucous; common throughout Michigan." (rvw11)
Comments: status: Endangered in Indiana & Pennsylvania. Threatened in Kentucky. Special concern, proposed Endangered in Tennessee. SAND GRAPE may be weedy or invasive in some habitats or areas (Assorted authors. 200_. *State noxious weed lists for 46 states*.) phenology: Blooms May - June. C3.
Associates:
ethnobotany: Fruits are sour until a frost, then glaucous, or covered with a whitish bloom, when ripe. Jelly may be made form fruits.
VHFS:
MICHIGAN FLORA ONLINE. AA Reznicek, EG Voss, & BS Walters. February 2011. University of Michigan. Web. March 11, 2012. http://michiganflora.net/species.aspx?id=2807



Vitis rupestris
Line drawing courtesy of Kentucky Native Plant Society. Photo by Enrico Romani.

Vitis vulpina Linnaeus *MI, NY FROST GRAPE, aka CHICKEN GRAPE, FOX GRAPE, RIVERBANK GRAPE, SCUPPERNONG, WILD GRAPE, WINTER GRAPE, *WINTERREBE*, (*vulpinus -a -um* of or relating to a fox, from Latin *vulpinus,* of or belonging to a fox.)
Habitat: In the Chicago area, now infrequent, in woods & along fences, wooded thickets, & low or rich woods (sw94). In Michigan, rich deciduous forests, especially along rivers (rvw11). In the se USA, "forests and woodlands, primarily upland, but also in bottomlands" (w12b). distribution/range: Occasional throughout Illinois. In Michigan, restricted to five cos on the Indiana border.



Culture: propagation: Sow at +2 to +4ºC (34-39ºF) for 12 wks, move to 20ºC (68ºF) for germination (tchn). From seed & cuttings. Growth rate moderate. Seedling vigor low. Vegetative spread rate . Seed spread rate slow. 14,400 (usda) seeds per pound. USDA cites availability by contracting only.
asexual propagation:
cultivation: Tolerant of coarse to medium textured soils. Anaerobic tolerance

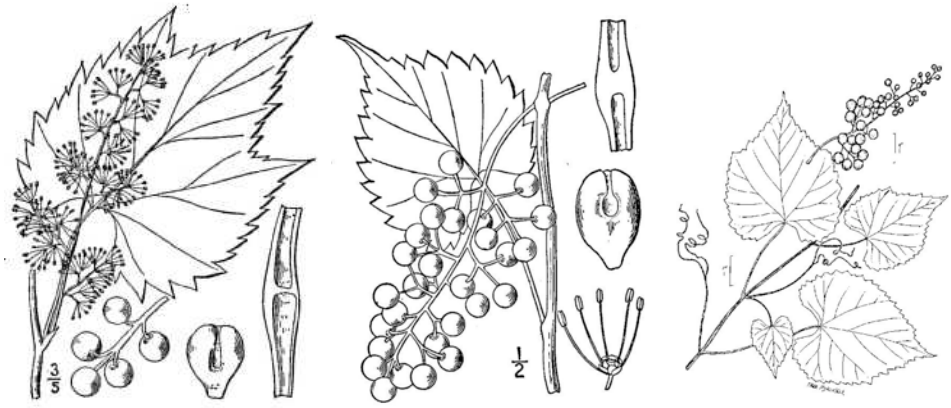
sparse or no cobwebby hairs; leaf margins with teeth various but acute & minutely ciliate in common species, without lobes or (usually) with acute sinuses between lobes. Lobes of leaf none or weakly developed & pointing outwards; margins with obtuse teeth, usually not ciliate; ripe fruit purple-black, not glaucous; rare, in southernmost Michigan." "The overall outline of the leaf blade is decidedly heart-shaped, much more so than *V. riparia*." (rvw11) Similar to *V riparia* but with mostly unlobed, glabrous or glabrate lower leaf surfaces, nodal diaphragms 1 mm or more thick, & berries black, not glaucous (sw94)

Comments: status: Threatened in Michigan. Endangered in New York. phenology: Blooms May - June. C3. "Common" (ewf55)

Associates: Wild turkeys eat fruit & leaves (Ilpin).

ethnobotany: Fruit is edible after a frost.

VHFS: Includes *V cordifolia.* [*Vitis cordifolia* Michx, *V cordifolia* Michx var *foetida* Engelm, *V cordifolia* Michx var *sempervirens* Munson, *V ilex* LH Bailey]

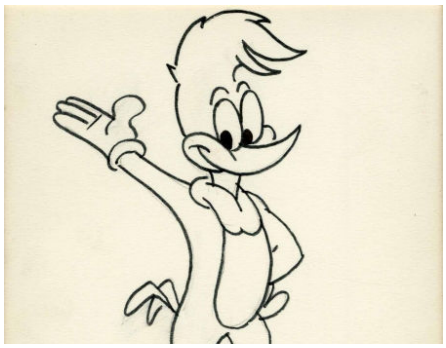


Vitis vulpina (2nd drawing *V. rotundifolia*)

1st & 2nd line drawings courtesy of Kentucky Native Plant Society. 3rd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Photo Robert H Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image

Additional selected sources are in the main bibliography in the closing section.

End of Woodies Section



Flectere si nequeo superos, Achaeronta movebo.

Endnotes & abbreviations

** The listed numbers are Germ mean, germ median, germ mode, germ standard deviation, germ range (range); Dorm mean, dorm median, dorm mode, dorm standard deviation, dorm range (range); Test mean, test median, test mode, test range.

Reference abbreviations May 04 2014

CEPPC	California Exotic Pest Plant Council
CIPC	California Invasive Plant Council
SEPPC	Southeast Exotic Pest Plant Council
SWSS	Southern Weed Science Society
RBG Kew, WP	RBG Kew, Wakehurst Place
aes10	(AES 2010)
apl	(Applewood)
wade	(Alan Wade, various years, 95, &c)
bb02	(Baskin & Baskin 2002, 2001, &c.)
crfg	California Rare Fruit Growers
cu00	(or cu02, Cullina 2000, 2002)
nd91	(Norm Deno, 1991, 1993)
den28	(Densmore 1928)
do63	(Dobbs 1963)
mfd93	(Mary Fisher Dunham 1993)
dh87	(Dirr & Heusser 1987)
ecs	(Ernst Conservation Seeds)
ew12	(Everwilde 2012) also ew11
ewf55	(Egbert W Fell 1955)
ewf59	(Egbert W Fell 1959)
fh	(Robert W Freckmann Herbarium)
fna	(Flora of North America project)
gni	(Genesis Nursery, Inc)
gran	(Granite Seeds)
he99	(Heon et al 1999)
hk83	(Hartman & Kester 1983)
jlh	(JL Hudson, Seedsman, (if the phone doesn't ring its me))
krr	(Kenneth R Robertson)
Ilpin	(Illinois Plant Information network)
lbj	(Lady Bird Johnson Wildflower Center Native Plant Information Network)
m14	(Mohlenbrock 2014) also m86, m02, m05, m06, &c
mbg	(Missouri Botanic Garden)
nyfa	(New York Flora Atlas)
pots	(Plants of the Southwest 2000)
pm09	(Prairie Moon 2009) also pm02, pm11, &c
pnnd	(Prairie Nursery no date)
pph	(Prairie Propagation Handbook)
pug13	(plants.usda.gov accessed 2013, 2014)
oed	Oxford English Dictionary online
rrn97	(Reeseville Ridge Nursery 1997)
rvw11	(Reznicek et al 2011)
rs ma	(Ray Schulenburg Morton Arboretum)
sh94	(Shirley Shirley 1994) & don't call me Shirley
sk08	(Stuppy & Kesseler 2008)

tpg	The Prairie Garden
uconn	(UConn Plant Database)
us97	(USDA 1997)
w12b	(Weakley Nov 2012) also w07-12
ws92	(Wilhelm & Swink 1992)
ry64	Richard Yarnell 1964)
yy92	(Young & Young 1992)