

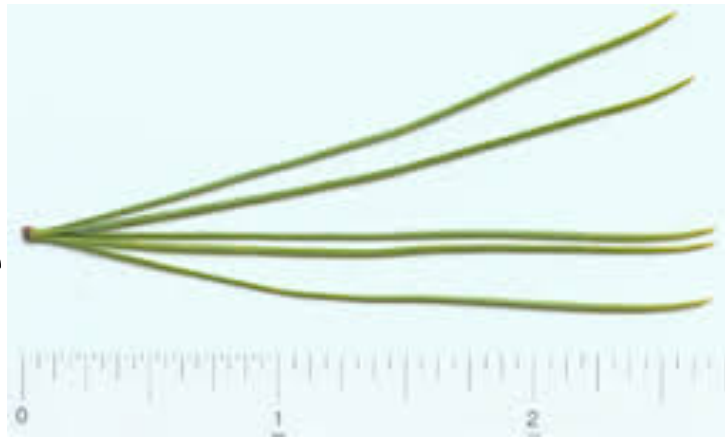
Cornell University

NTRES 2100 - Introduction to Field Biology – Fall 2016

Trees, shrubs, and vines

Pinus strobus

Eastern white pine



Distinctive characteristics:

- Needles: cluster in groups of 5, flexible, 2.5"-5" in length
- Bark: dark grey, tinged with purple; slightly furrowed
- Cones: long, slender, 4"-8"; hang in clusters; white resin sometimes on the tips of open cones.
- Other: long horizontal branches; will often be taller than surrounding trees
- Intermediate shade tolerance



UGA1398115

Marlin

Pinus resinosa

Red Pine

Distinctive characteristics:

- Needles: cluster in groups of 2; 5" long, rigid and straight; snap cleanly when bent
- Cones: small among long needles (1.5"-2.5"); not prickly, with thin scales
- Bark: red-brown, scaly; more prominent reddish color can be seen in fissures
- Other: mature trees have a tall, straight, clean trunk with a crown of branches at the top
- Shade INTolerant



Pinus rigida

Pitch Pine



Distinctive characteristics:

- Needles: long, stiff; cluster in groups of 3
- Bark: red-brown, deeply and irregularly furrowed
- Cones: large, thick scales, flat at the base; cluster in groups of 3(-5)
- Other: irregular branch growth pattern; good fire resistance
- Intermediate shade tolerance



Larix laricina

Eastern Larch

Distinctive characteristics:

- Needles: clusters of 10-20; featherlike and soft; bright green
- Cones: very small (0.4"-0.9"), stand up along twigs
- Bark: reddish brown, scaly
- Other: deciduous conifer, needles turn yellow and drop in the fall; generally found in swamps, bogs and lowland areas
- Shade INTolerant



Picea spp.

Spruce spp.

Distinctive characteristics:

- Needles: short, very rigid, spiky; attached singly to branches in a spiraling pattern
- Bark: gray brown, scaly
- Cones: hanging from upper crown of tree generally
- Other: have conical growth pattern
- Intermediate shade tolerance

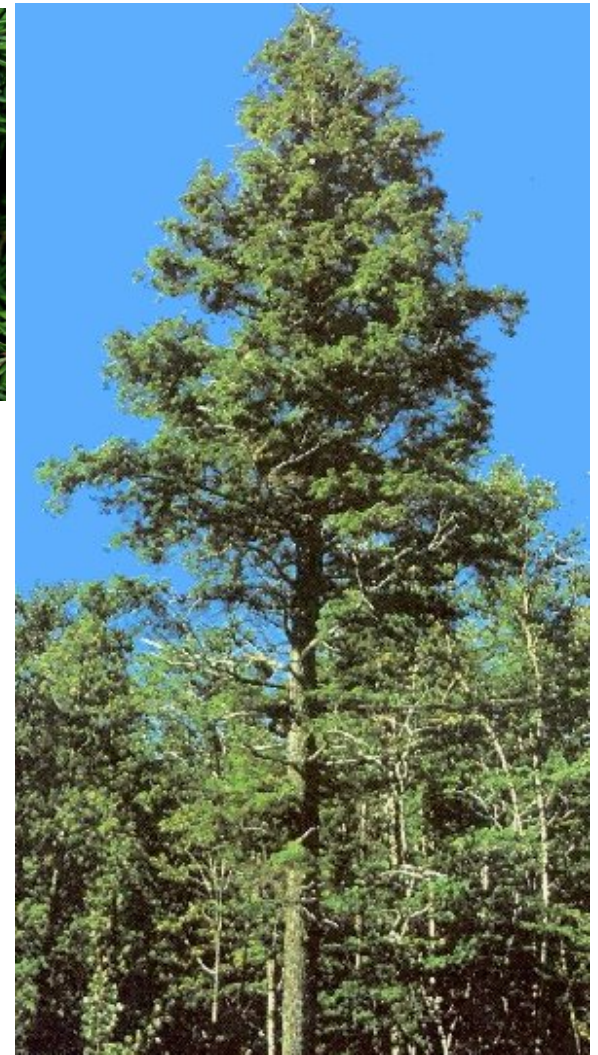


Tsuga canadensis

Eastern hemlock

Distinctive characteristics:

- Needles: flat, short; strongly 2-ranked; silvery underside
- Cones: 0.5"-1"; found hanging from lower branches.
- Bark: dark gray; young bark peels in rectangular scales, mature bark rigid and furrowed
- Other: drooping branch tips
- Shade Tolerant



Abies balsamea

Balsam fir

Distinctive characteristics:

- Needles: blunt, flat, and short; NOT 2-ranked; attached directly to twig; have 2 white stripes running the length of the underside
- Cones: upright and limited to the upper tree branches.
- Bark: resin blisters which burst when pressed on
- Shade Tolerant

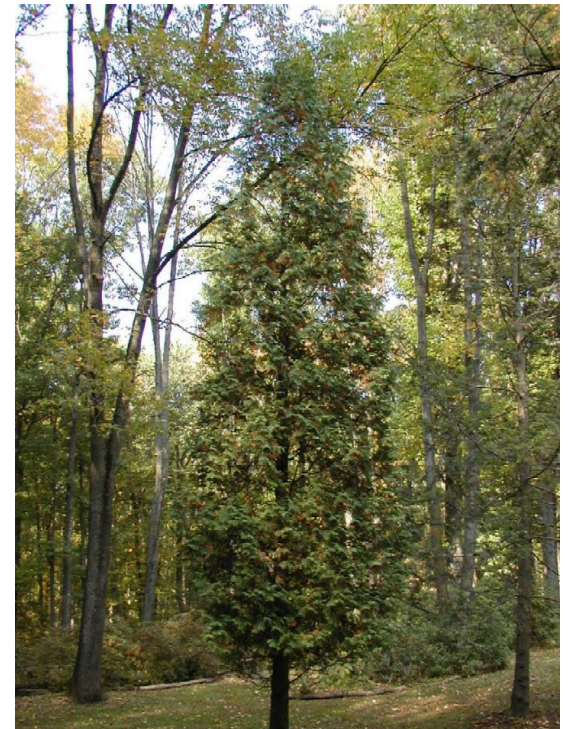


Thuja occidentalis

Northern white-cedar

Distinctive characteristics:

- Leaves: flat, 2-ranked, scale-like; grow in fan-shaped spray
- Cones: very small,, upright, form clusters
- Bark: reddish brown or grayish brown, thin, fibrous, fissured
- Intermediate shade tolerance

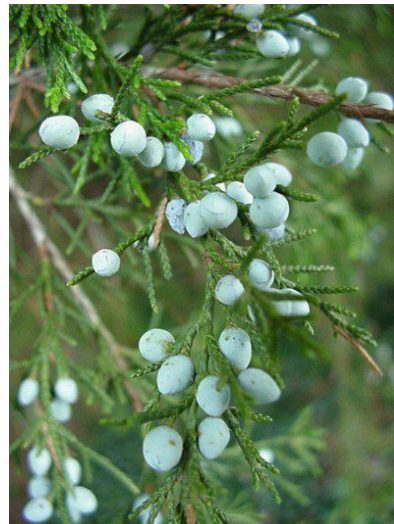


Juniperus virginiana

Eastern red cedar

Distinctive characteristics:

- Leaves: opposite; rounded and scale-like; cover older twigs close together in alternating pairs; young shoots appear more needle-like
- Bark: reddish, peels in thin strips
- Cones: seed surrounded by pale blue, fleshy berry-like cones
- Other: grows in a narrow, upright pattern
- Intermediate shade tolerance



Taxus spp.

Yew

Distinctive characteristics:

- Needles: short, flat, 2-ranked; underside is bright green
- Bark: reddish brown, peels in small rectangular scales
- Cones: pollen cones are round, yellowish; seed surrounded by red, berry-like cup
- Other: sprawling shrub, rarely more than 8'-10' tall
- Shade tolerant



Liriodendron tulipifera

Tulip poplar

Distinctive characteristics:

- Leaves: random orientation; very distinctive 4-lobed shape; long petioles
- Bark: chiseled ridges with paler furrows
- Flowers: light yellow and green, often fall to the ground
- Fruit: upright cone-like cluster of samaras
- Other: mature trees are very large, straight, and tall (80'-100')
- Shade INTolerant



Magnolia acuminata

Cucumber tree

Distinctive characteristics:

- Leaves: very large, 8" in length; oval shaped with a pointed tip (*acuminata* references the tapered point); under-leaf is pale green and soft
- Bark: grayish brown, furrowed, with straight, flat-topped ridges
- Flowers: small, greenish-yellow.
- Fruit: immature fruit looks like light green cucumber; mature fruit is irregularly shaped and red-brown in color
- Other: trunk grows very straight



Sassafras albidum

Sassafras

Distinctive characteristics:

- Leaves: alternate, simple; can have 0-3 lobes at the leaf apex; light, bright green, turn yellow/red in the fall
- Bark: rough, light gray bark; often smells of fruit loops when scratched
- Flowers: small, light yellow
- Fruit: dark blue, oblong berry with a red stem
- Shade INTolerant



Lindera benzoin

Spicebush

Distinctive characteristics:

- Medium sized shrub (~10-15 feet tall).
- Simple alternate oval leaves widest beyond the middle of the leaf (~2-5 inches long).
- Leaves are aromatic when crushed.
- Flowers are small and yellow and fruit is small and red (when ripe).



Fagus grandifolia

American Beech

Distinctive characteristics:

- Leaves: alternate, simple; dark green; 2.5"-5" in length with small, widely spaced teeth
- Bark: smooth, silver gray bark
- Large tree with smooth silver gray bark.
- Other: dead leaves can stay on the tree into late fall and winter; twigs are short and end in a long, sharp/pointed terminal bud
- Shade Tolerant



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Quercus alba

White Oak

Distinctive characteristics:

- Leaves: alternate, simple; rounded lobes with moderate to deep sinuses; smooth leaf margin
- Bark: light gray, scaly with shallow fissures.
- Acorns: smooth cap with a shallow cup
- Other: canopy is wide-spreading
- Intermediate shade tolerance



Quercus montana

Chestnut Oak

Distinctive characteristics:

- Leaves: alternate, simple; elliptical shape with rounded, regular teeth; pale green under-leaf
- Bark: dark in color and has deep, blocky fissures
- Acorns: caps are smooth and relatively deep
- Other: common in uplands and dry forests
- Intermediate shade tolerance



Quercus rubra

Northern red oak

Distinctive characteristics:

- Leaves: alternate, simple; 7-11 lobes that taper into points; red petioles
- Acorns: caps are shallow and smooth
- Bark: reddish gray and there are lighter, slightly shiny strips (ski tracks) that continue all the way down the trunk.
- Other: leaves turn red in the fall
- Intermediate shade tolerance



White oak group

Leaves of oak groups

Red oak group

Sun

Shade



White oak



Swamp white oak



Chestnut oak



Bur oak



Black oak



Red oak

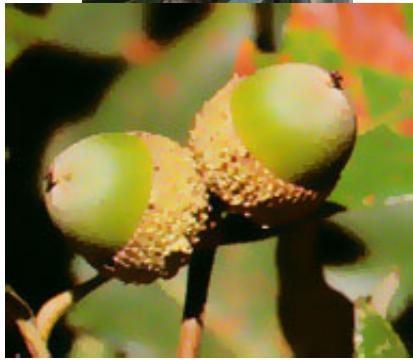


Scarlet oak

White oak group



White oak



Swamp white oak



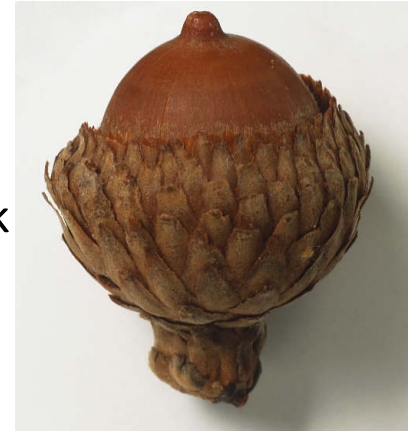
Chestnut oak



Bur oak

Acorns

Red oak group



Black oak



Red oak



Scarlet oak

Alnus incana

“Speckled” or “gray” alder

Distinctive characteristics:

- Leaves: alternate, simple; 3” long, egg shaped; coarsely double toothed
- Bark: gray bark, covered in pale, horizontal lenticels
- Fruit: woody, cone-like fruit
- Other: small tree/shrub with multiple spreading trunks
- Intermediate shade tolerance



Ostrya virginiana

(Eastern) Hophornbeam

Distinctive characteristics:

- Leaves: alternate, simple; ovoid, 2.5"-4" long; doubly serrated margins; upper leaf is rough, not glossy
- Bark: brown-gray with shaggy plates that flake off, unique for a tree of its size
- Fruit: hanging clusters pointed, papery seed capsules
- Other: small, understory tree
- Shade Tolerant



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Carpinus caroliniana

American Hornbeam

Distinctive characteristics:

- Leaves: alternate, simple; ovoid, 2.5"-4" in length; finely serrated margins
- Bark: very smooth gray bark
- Fruit: hanging cluster of 3-lobed samaras
- Other: small, understory tree
- Shade Tolerant

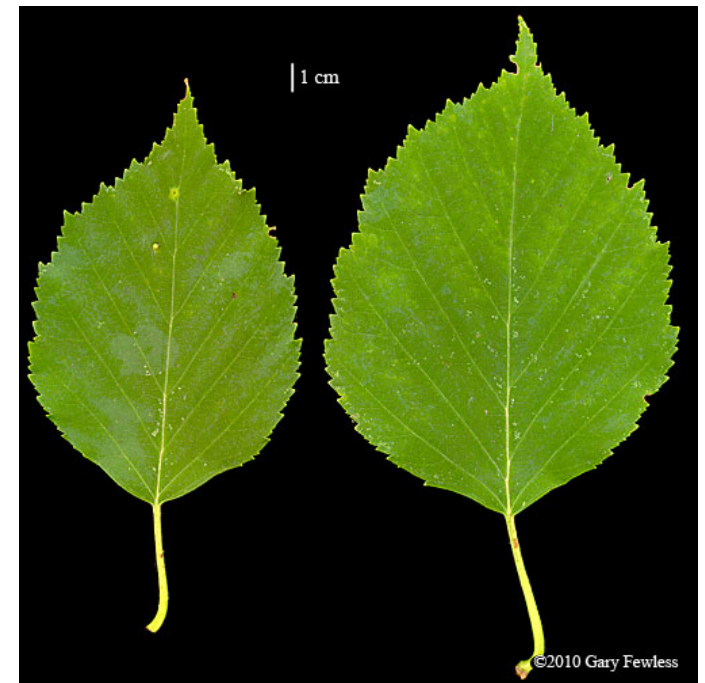


Betula papyrifera

Paper birch

Distinctive characteristics:

- Leaves: alternate, simple; ovate, 1"-5" in length; coarsely double toothed; pale green under-leaf
- Bark: young bark is reddish brown with pale lenticels; mature bark is white with large sections peeling off in horizontal strips
- Fruit: short, stout hanging catkins
- Other: much larger than other birches
- Shade INTolerant



Betula alleghaniensis

Yellow birch

Distinctive characteristics:

- Leaves: alternate, simple; ovoid, 2.5"-4" in length; finely serrated along the margin; short petioles
- Bark: yellowish bronze color, flakes off in horizontal strips; older trees can develop broad gray plates that peel at the edges
- Fruit: hanging catkins similar to black birch, but shorter
- Other: leaves turn yellow in the fall
- Intermediate shade tolerance



Betula lenta

Black birch

Distinctive characteristics:

- Leaves: alternate, simple; ovoid, 2.5"-4" in length; finely double serrate; pale green under-leaf; short petioles
- Bark: smooth, dark gray with horizontal lenticels; bark can crack vertically in older trees
- Fruit: hanging yellow catkins
- Other: strong wintergreen smell if twigs are broken or bark is scratched
- Intermediate shade tolerance



Juglans nigra

Black walnut

Distinctive characteristics:

- Leaves: alternate, compound with 15-23 narrow, pointed leaflets; terminal leaflet is absent or small; leaflets broadest near the base; strong lemon smell when crushed
- Bark: dark gray, deeply furrowed in diamond pattern
- Fruit: 2" green ball, ripens to dark brown
- Other: leaves turn very yellow in fall
- Shade INTolerant



Juglans cinerea

Butternut

Distinctive characteristics:

- Leaves: alternate, compound with 11-17 leaflets; 2"-3" long, broadest in the middle; have a well developed terminal leaflet; finely serrated margins
- Bark: light gray (cinerea, ash colored, in reference to gray bark), tops of ridges are flattened The bark is light gray, and the tops of the ridges are flattened
- Fruit: 2" oblong green ball, clusters of 2-5; remain on tree until after leaf fall
- Shade INTolerant



Carya ovata

Shagbark hickory

Distinctive characteristics:

- Leaves: alternate, compound with 5-7 leaflets; 3 terminal leaflets are larger than the rest; finely serrated margins towards leaf tip
- Bark: light gray, peels off vertically in very large strips
- Fruit: nut contained in a large, round (*ovata* meaning egg shaped) ribbed husk
- Intermediate shade tolerance



Carya glabra

Pignut hickory

Distinctive characteristics:

- Leaves: alternate, compound with 5-7 leaflets; 3 terminal leaflets are much larger than the others
- Bark: narrow interlacing ridges
- Fruit: large nut contained in an oblong green husk; resembles pig nose when broken in half
- Intermediate shade tolerance



Carya cordiformis

Bitternut hickory

Distinctive characteristics:

- Leaves: alternate, compound with 7-11 leaflets; terminal leaflet is the largest, others decrease in size; under-leaf is pale and slightly hairy
- Bark: shallow furrows between interlacing ridges
- Fruit: large nut, contained in a four sectioned green husk
- Other: buds are sulfur yellow and pointed
- Shade INTolerant



Salix nigra

Black Willow

Distinctive characteristics:

- Leaves: alternate, simple; long, slender, finely serrated; loosely arranged pointing towards branch tip
- Bark: dark brown to black, mature trees have deeper fissures
- Flowers: greenish to yellow catkins
- Other: typically have multiple trunks; found in lowlands near swamps or streams; fall color is yellow-brown
- Shade INTolerant

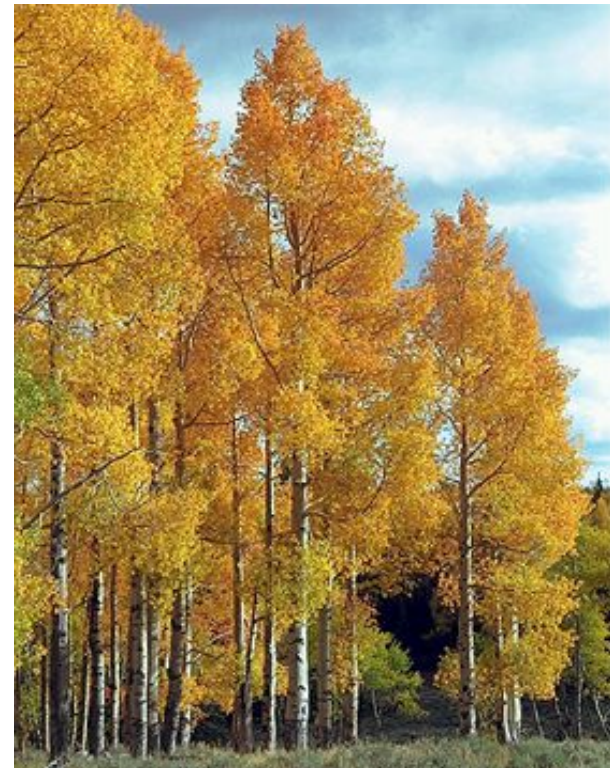


Populus tremuloides

Quaking aspen

Distinctive characteristics:

- Leaves: alternate, simple; circular or diamond shaped; finely and regularly toothed; pale-green under-leaf; flattened petiole causes quaking in the wind
- Bark: greenish white to gray with black horizontal scars
- Flowers: catkins, 3" long, appear before the leaves
- Other: leaves turn golden yellow in fall
- Shade INTolerant



Populus grandidentata

Bigtooth aspen

Distinctive characteristics:

- Leaves: alternate, simple; about 4", egg-shaped with large, blunt teeth; quake when the wind blows through them
- Bark: deeply furrowed and gray in maturity, but the tops of trees often retain smooth, greenish white bark
- Other: thrives in drier, upland sites
- Shade INTolerant



Old bark



Young bark



Populus deltoides

Eastern cottonwood

Distinctive characteristics:

- Leaves: alternate, simple; triangular (*deltoides*) with large teeth; flattened petiole, causes “quaking” in the wind
- Bark: greenish gray on young trees; becomes deeply furrowed with maturity
- Fruit: capsules release cottony-fluff in early summer
- Other: lives in wet lowland sites near streams/rivers
- Shade INTolerant



Ulmus americana

American elm

Distinctive characteristics:

- Leaves: alternate, simple; 5" long with double toothed margins; asymmetrical base; rough to the touch
- Bark: dark gray, slightly flaky; feels corky and soft when pressed; cross section displays alternating layers of white and brown
- Other: Dutch elm disease has damaged larger trees—most examples are very small
- Intermediate shade tolerance



Prunus serotina

Black cherry

Distinctive characteristics:

- Leaves: simple, alternate; narrow oval shape with finely serrated margins; orange hairs line midvein on under-leaf
- Bark: dark gray, young bark smooth with pale lenticels; mature bark broken up, looks like flaky potato chips
- Fruit: small, sparse clusters of berries that ripen from red to black
- Other: grows very straight
- Shade INTolerant



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young bark



mature bark

Sorbus americana

Mountain ash

Distinctive characteristics:

- Leaves: alternate, compound with 13 to 17 leaflets; 3" long, pointed, toothed
- Bark: light gray; young bark with prominent lenticels, mature bark has scaly ridges
- Flower: very small, white, form clusters
- Fruit: large cluster of small orange-red berries; persists through the winter
- Shade INTolerant



Amelanchier spp.

Serviceberry

Distinctive characteristics:

- Leaves: alternate, simple; oval shape, ½"-3" in length; finely serrated near tip; dull green
- Bark: smooth pale gray with striations
- Flowers: small, white, with thin petals; form large clusters
- Fruit: green, berry-like, ripens to red, then a purplish black
- Other: small tree/shrub; often planted as an ornamental
- Intermediate shade tolerance



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Crataegus spp.

Hawthorn

Distinctive characteristics:

- Leaves: alternate, simple; wide range of leaf shapes between species; most often 1"-3" with toothed margins
- Fruit: small, round, apple-like; range in color from red to yellow
- Other: sharp thorns(½"-1") stick out of the trunk and branches; small tree/shrub; often planted as ornamental
- Intermediate shade tolerance



Rubus spp.

Raspberry

Distinctive characteristics:

- Leaves: alternate, compound with 3-5 leaflets; finely serrated margins; papery feel
- Fruit: red aggregate berries
- Other: shrub with rambling growth habit; have woody stems with thorns, spines, or bristles
- Intermediate shade tolerance



Blackberries & Leaves

Morus spp.

Mulberry

Distinctive characteristics:

- Leaves: alternate, simple; variable in shape—can have very irregular lobes; serrated margins; bright glossy green; have 3 main veins
- Bark: prominent orange-brown color
- Fruit: produces edible berry in summer
- Other: milky sap discharged from petiole when broken
- Intermediate shade tolerance



Rhamnus spp.

Buckthorn

Distinctive characteristics:

- Leaves: simple, alternate; 1"-3" in length; egg-shaped, with veins that curve upward towards tip and run along the leaf margin
- Fruit: small, black berries
- Other: often large, sharp thorns on branches; small tree/shrub
- Intermediate shade tolerance



Gleditsia triacanthos

Honey locust

Distinctive characteristics:

- Leaves: alternate, compound with 20-30 leaflets $\frac{1}{2}$ -1" in length; leaflets have smooth margins
- Bark: gray-brown to black with broad ridges peeling from sides
- Fruit: long green pods, mature in fall and turn dark brown/red
- Other: tree crown may have thick, branched thorns; fall color is golden yellow
- Shade INTolerant



Robinia pseudoacacia

Black locust



Distinctive characteristics:

- Leaves: pinnately compound leaves are 8 to 14 inches long, with 7 to 19 short stalked leaflets. Dull green leaflets are ovoid or oval, 1 to 2 inches long, thin, scabrous above and pale below
- Bark: deeply furrowed and is dark reddish-brown to black in color
- Fruit: long green pods, mature in fall and turn dark brown/red

Other: A pair of sharp thorns grows at each node. They are 1/2 to 3/4 inches long, and very stout

- Shade INTolerant



Lonicera spp.

Honeysuckle

Distinctive characteristics:

- Leaves: opposite, simple; between 0.5"-3" in length
- Bark: lighter brown, shaggy with long, narrow strips
- Flowers: whitish-yellow, bell-shaped, smell sweet if crushed
- Fruit: can be blue, black, or red; not edible
- Other: arching shrub or vine
- Intermediate shade tolerance
- **Invasive**



Viburnum spp.

Viburnum

Distinctive characteristics:

- Leaves: opposite, simple; vary in size and shape between species
- Flowers: white to pink in color, very small, form large clusters
- Fruit: small, can be purple, blue, black, or red
- Other: shrub, 3-12 ft tall



Sambucus spp.

Elderberry

Distinctive characteristics:

- Leaves: compound, opposite with 5-9 leaflets; 4" pointed leaflets with serrated margins
- Flowers: small, white, form clusters
- Fruit: purplish black berries form flat topped clusters
- Other: shrub
- Intermediate shade tolerance



Acer saccharum

Sugar maple

Distinctive characteristics:

- Leaves: simple, opposite; 5 lobes with deep, “u” shaped sinuses
- Bark: young bark is smooth, mature bark furrows in large, somewhat shaggy plates that strip vertically
- Fruit: paired samaras at a 90 degree angle
- Shade Tolerant



Acer saccharinum

Silver maple

Distinctive characteristics:

- Leaves: simple, opposite; 5 lobes with narrow, deep, “u” shaped sinuses; whitish under-leaf much lighter than the top
- Bark: shaggy, peels in small, vertical strips
- Fruit: paired samaras, with the largest wings of native the maples
- Other: grows best on moist soils
- Shade INTolerant



Acer rubrum

Red maple

Distinctive characteristics:

- Leaves: simple, opposite; toothed margins; smaller than other maples with 3-5 lobes and narrow, v-shaped sinuses; red petiole
- Bark: long, narrow plates with ridges
- Fruit: 1" paired samaras, the smallest of all maples
- Other: leaves turn red in the fall before most other trees
- Intermediate shade tolerance



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Acer pensylvanicum

Striped maple

Distinctive characteristics:

- Leaves: simple, opposite; 3 lobes with shallow sinuses; serrated margins
- Bark: young bark is green with vertical white stripes, mature bark is greenish-brown with faint vertical stripes
- Fruit: paired samaras
- Other: small, understory tree
- Shade Tolerant



Young



Mature

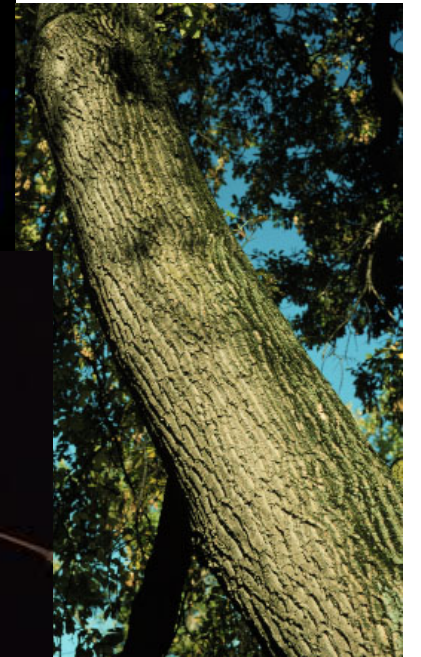


Acer negundo

Ash-leaf maple or Boxelder

Distinctive characteristics:

- Leaves: opposite, compound with 3-5 leaflets that widen towards the base
- Bark: heavily furrowed in old trees, young bark is gray-brown and fairly smooth
- Fruit: paired samaras in a V-shape with narrow seeds
- Shade Tolerant



Acer platanoides

Norway maple

Distinctive characteristics:

- Leaves: simple, alternate; 5-lobed, similar to sugar maple leaves
- Bark: neatly furrowed
- Fruit: double winged samaras at 180 degree angle
- Other: broken petiole releases milky sap; tar spots are common on the leaves
- Shade Tolerant
- *Invasive*



Norway maple leaf



www.tree-species.blogspot.com



Maple leaves



Striped maple



Sugar maple



Silver maple



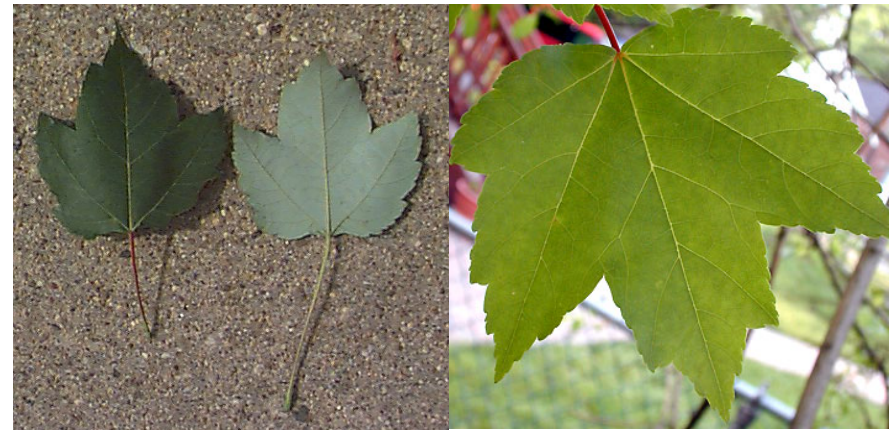
Norway maple



Box elder



Red maple



Rhus typhina

Staghorn sumac

Distinctive characteristics:

- Leaves: alternate, compound with 11-31 leaflets; finely serrated edges; central stalk is reddish, 16-24" long
- Fruit: pointed, compact cluster of red, round, hairy drupes
- Other: small tree/shrub; often forms thickets
- Not highly shade tolerant

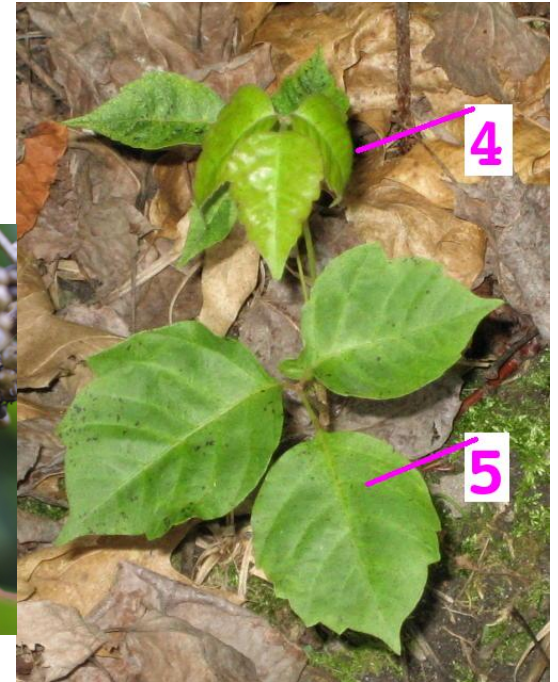


Toxicodendron radicans

Poison ivy

Distinctive characteristics:

- Leaves: compound and alternate, with 3 leaflets; mature leaves can be shiny
- Fruit: berry-like, grayish white
- Other: can be small shrub, or ground or climbing vine; vine is covered in hairs.
- Shade tolerant



Virginia Tech Weed I.D. Guide



T. Hale - NYSDOT



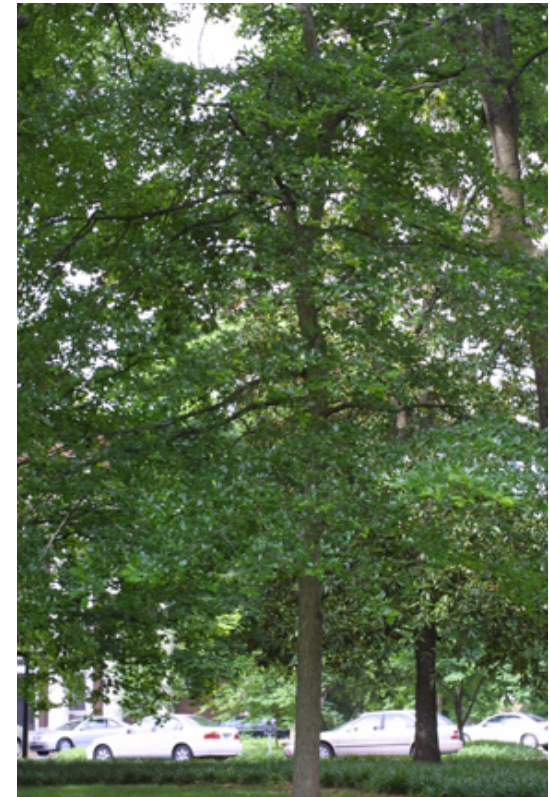
Nyssa sylvatica

Blackgum



Distinctive characteristics:

- Leaves: simple, alternate; generally oval-shaped, forming dense clusters; dark green, glossy, and leathery
- Bark: dark gray, thick and irregular blocky furrows
- Fruit: cluster of 1-5 small, dark blue-black berries, hanging from a long stalk
- Shad Tolerant



Cornus florida

Flowering dogwood

Distinctive characteristics:

- Leaves: simple, opposite, oval; veins arch towards tip and run along leaf margin; whitish under-leaf
- Flowers: cluster with 4 white bracts with notched tips
- Fruit: berry-like, small, bright red, and shiny
- Other: small tree/shrub; if leaf is torn gently, it will still be held together by small strands
- Shade Tolerant



Cornus racemosa

Red-panicle dogwood

Distinctive characteristics:

- Leaves: simple, opposite; oval and taper to a point; veins are arched towards the tip, run along the leaf margin
- Flowers: small, white, loosely clustered
- Fruit: white, berry-like fruits clustered on bright red stems; appear in Sept-Oct.
- Other: small tree/shrub; if leaf is torn gently, it will still be held together by small strands
- Shade Tolerant



Hamamelis virginiana

Witch hazel

Distinctive characteristics:

- Leaves: simple and opposite; widest at the middle, asymmetrical at the base; rounded, irregular teeth
- Flowers: small, bright yellow, with 4 narrow petals along twig; *flowers in the fall*
- Fruit: buds long and fuzzy; fruit is short and thick in 2-beaked capsules
- Other: small tree/shrub; leaves can have a cone gall caused by aphids, look like witch hats
- Shade Tolerant



Fraxinus americana

White ash

Distinctive characteristics:

- Leaves: opposite, compound with 5-9 leaflets of the same size; pale green underleaf; finely toothed near leaf point
- Bark: gray, with thin intersecting ridges forming a diamond pattern
- Fruit: 1 ½" slender seed bodies; pale green to yellow
- Other: leaf scars are U-shaped
- Shade INTolerant



Platanus occidentalis

American Sycamore

Distinctive characteristics:

- Leaves: alternate, simple, roughly star shaped with 3-5 shallow lobes; palmate veined; irregularly toothed
- Bark: flakes off in chunks, leaving patchwork of brown, yellow and green.
- Fruit: yellowish, 1 ¼" ball that hangs from a thin stalk, contains many seeds, persists all winter
- Intermediate shade tolerance



Vitis spp.

Grape

Distinctive characteristics:

- Leaves: alternate, simple; large, 3 lobes; serrated leaf margins; 5 main veins with additional, irregular venation
- Flowers: small, yellow-green, form clusters
- Fruit: berry-like, grows in clusters.
- Other: vine
- Intermediate shade tolerance



Parthenocissus quinquefolia

Virginia creeper

Distinctive characteristics:

- Leaves: alternate, compound with 5 leaflets (rarely 3), joined in the center; pointed and coarsely toothed, about 6" long
- Fruit: cluster of ¼" bluish black berries
- Other: VINE, can climb up to 60 ft on trees; turns bright red in autumn.
- Intermediate shade tolerance



Vaccinium spp.

Blueberries



Distinctive characteristics:

- Leaves: alternate, simple, ovate
- Fruit: small berries containing multiple seeds; come in many colors
- Other: includes blueberries, cranberries, huckleberries; tend to grow in acidic soils
- Intermediate shade tolerance



Tilia americana

American Basswood

Distinctive characteristics:

- Leaves: alternate, simple; heart shaped, but asymmetrical at the base; toothed edges
- Bark: young bark is smooth and pale; mature bark dark gray-brown with block narrow flat-topped ridges
- Flowers: yellow-white, fragrant, hang in 6-20 flowered clusters.
- Fruit: small 1 seeded capsules that hang from long stalk, capped with a thin leaf
- Shade tolerant

