Tree Guide Key

I. Leaves alternate

A. Leaves simple
   1. Margins entire .......................................................... Pg. 1
      a. Leaves oval to elliptic ........................................ Pg. 1
      b. Leaves not oval or elliptic ................................. Pg. 2
         i. Leaves lobed ................................................. Pg. 2
         ii. Leaves not lobed ............................... Pg. 5
   2. Margins toothed ...................................................... Pg. 6
      a. Leaf bases uneven ........................................... Pg. 6
      b. Leaf bases even ............................................ Pg. 7
         i. Leaves lobed ................................................. Pg. 7
         ii. Leaves not lobed ............................... Pg. 7
   B. Leaves compound ................................................... Pg. 10

II. Leaves opposite

A. Leaves simple
   1. Margins entire ........................................................ Pg. 13
      a. Leaves lobed .................................................. Pg. 13
      b. Leaves not lobed ............................................ Pg. 13
   2. Margins toothed ...................................................... Pg. 14
      a. Leaves lobed .................................................. Pg. 14
      b. Leaves not lobed ............................................ Pg. 14
   B. Leaves compound ................................................... Pg. 15
How to Use this Guide

This guide was created as an easy-to-use reference for beginner tree identification. It is not a comprehensive guide. Trees represented in the guide include those that are native to Maryland, those that are introduced (exotic), and those that are exotic and create ecological problems (invasive).

To use this guide, begin with the key on the previous page. Terms used in the key are illustrated on pages x - xii.

Please note that leaves can be highly variable in shape, size, appearance, and color. Leaves selected for this guide are intended to represent commonly found phenotypes. Leaves represented are not shown to scale.

Under each leaf, the following information will be listed:

<table>
<thead>
<tr>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Scientific name)</td>
</tr>
<tr>
<td><strong>Native, Exotic or Invasive</strong></td>
</tr>
<tr>
<td>• Distinguishing characteristics</td>
</tr>
</tbody>
</table>

Common Identification Terms: Simple Versus Compound

**Simple** and **compound** refer to whether or not a leaf the leaf is divided. Simple leaves have a single blade attached to a stem known as a *petiole*. Compound leaves have multiple blades known as *leaflets*. To make sure you are looking at a leaf and not a leaflet, look for the *lateral bud* where the petiole meets the twig. All leaves have this trait, but *leaflets do not.*
**Alternate Versus Opposite Leaves**

*Alternate* and *opposite* refer to the arrangement of leaves along the twig. Do the leaves appear to zig-zag along the twig, or are they directly across from one another?

<table>
<thead>
<tr>
<th>ALTERNATE</th>
<th>OPPOSITE</th>
</tr>
</thead>
</table>

**Entire Versus Toothed Leaf Margins**

*Entire* and *toothed* refer to the edge of the leaf. The edge of a leaf is also known as a *margin*. Do the leaf edges seem to zig-zag, or are they smooth?

| ENTIRE | TOOTHED |
Even Versus Uneven Leaf Bases

Even and uneven refer to the shape of the base of the leaf. Do both sides of the base of the leaf line up with one another; or are they uneven?

Even Leaf Base

Uneven Leaf Base

Lobed Versus Not Lobed Leaves

Lobed and not lobed refer to the shape of the leaf. Does the leaf have sections that jut out, or does it have a consistent leaf edge?

Lobed

This is a lobe.

Not Lobed
Southern Magnolia  
*(Magnolia grandiflora)*  
**Exotic**  
• Underside orange and hairy  
• Evergreen

Umbrella Magnolia  
*(Magnolia tripetala)*  
**Native**  
• Leaves 10-24”

Common Pawpaw  
*(Asimina triloba)*  
**Native**  
• Leaves 6-12”  
• Edible fruit

Sweetbay Magnolia  
*(Magnolia virginiana)*  
**Native**  
• Underside white

Common Persimmon  
*(Diospyros virginiana)*  
**Native**  
• Bark broken in small squares  
• Edible fruit
Alternate, Simple, Entire, Oval – Elliptic; Cont’d

**Bradford Pear**  
*Pyrus calleryana*  
**Invasive**  
- White flowers with unpleasant smell in spring  
- Small, round fruit in fall

**Rhododendron sp.**  
*Rhododendron sp.*  
**Native/Exotic**  
- Variable leaf shape  
- Evergreen

**Spicebush**  
*Lindera benzoin*  
**Native**  
- Shrub  
- Aromatic when crushed  
- Red berries in fall

**Sassafras**  
*Sassafras albidum*  
**Native**  
- Hairy leaves  
- Variable leaf shape (see pg. 4)  
- Aromatic when crushed

**Black Gum**  
*Nyssa sylvatica*  
**Native**  
- Dark, shiny leaves  
- Underside lighter  
- Blocky bark
Alternate, Simple, Entire, Not Oval, Lobed

All leaves on this page have bristle-tips.

Scarlet Oak
(Quecus coccinea)
Native
- Twigs reddish-brown
- Buds hairy, pointed
- Tufts of hair on underside
- Inner-bark orangish-pink

Southern Red Oak
(Quecus falcata)
Native
- Top lobe elongated
- Leaf base rounded

Blackjack Oak
(Quecus marilandica)
Native
- Leaf lobes broad
- Leaf is triangular

Pin Oak
(Quecus palustris)
Native
- Deep lopes
- Twigs shiny
- Buds light brown, hairless
- Inner bark pink

Northern Red Oak
(Quecus rubra)
Native
- Variable leaf shape
- Leaves never hairy
- Twigs reddish-brown
- Buds hairy, pointed
- Inner bark pink

Black Oak
(Quecus velutina)
Native
- Hairy near veins on underside
- Twigs light brown
- Buds tan, oval-shaped, hairy
- Inner bark orange or yellow

Pg. 3
All leaves on this page do not have bristle-tips.

**Chestnut Oak**  
*Quercus montana*  
Native  
- Shallow lobes

**Post Oak**  
*Quercus stellata*  
Native  
- Big lobes  
- Leaf lobes cross-shaped

**White Oak**  
*Quercus alba*  
Native  
- Deeply lobed  
- Leaf shape variable  
- Grayish-green on top

**Sassafras**  
*Sassafras albidum*  
Native  
- Hairy leaves  
- Leaf shape variable (see pg. 2)  
- Aromatic when crushed

**Tulip Poplar**  
*Liriodendron tulipfera*  
Native  
- Has 4 lobes  
- Flowers resemble tulips

Pg. 4
Ginkgo
*(Ginkgo biloba)*
**Exotic**
- Fan-shaped
- Commonly planted

Willow Oak
*(Quercus phellos)*
**Native**
- Narrow with bristle-tip

Eastern Redbud
*(Cercis canadensis)*
**Native**
- Heart-shaped
- Flowers pink-purple, present before leaves
- Has pea-like pods in fall
American Basswood
(Tilia americana)
Native
• Smooth to touch
• Finely toothed
• Small fruits with leafy “wings” in fall

American Elm
(Ulmus americana)
Native
• Mostly smooth to touch; Slippery Elm sandpapery with hairy underside
• Tree is vase-shaped
• Commonly planted

Siberian Elm
(Ulmus pumila)
Invasive
• Leaves narrow
• Leaves up to 3” in length
• Fruit round, winged

Mulberry sp.
(Morus sp.)
Native/Invasive
• Leaf shape variable (see pg. 7,9)
• Fruit resembles blackberries
• Milky sap

Witch-hazel
(Hamamelis virginiana)
Native
• Yellow flowers in fall
Alternate, Simple, Toothed, Leaf Bases Even, Lobed

American Sycamore
(Platanus occidentalis)
Native
• Leaves large, broad
• Bark gray, white, pale green

Sweetgum
(Liquidambar styraciflua)
Native
• Leaves star-shaped;
• Tree produces spiky, ball-shaped seed pods in fall

Mulberry sp.
(Morus sp.)
Native/Invasive
• Leaf shape variable (see pg. 6,9)
• Fruit resembles blackberries
• Milky sap

Alternate, Simple, Toothed, Leaf Bases Even, Not Lobed

River Birch
(Betula nigra)
Native
• Bark peeling, bright orange or reddish-brown

Hophornbeam
(Ostrya virginiana)
Native
• Buds round
• Leaf veins sometimes forked
• Fruit round, winged
• “Ironwood”

American Hornbeam
(Carpinus caroliniana)
Native
• Buds square
• Leaf veins never forked
• Fruit winged
• Bark smooth, gray
• “Musclewood”
American Chestnut
(*Castanea dentata*)
- Native
- Leaves long, narrow
- Leaf base tapers
- Feels thin, papery

Chinese Chestnut
(*Castanea mollissima*)
- Exotic
- Leaves oval
- Leaf base rounded
- Feels thick, waxy

American Beech
(*Fagus grandifolia*)
- Native
- Bark smooth, gray
- Buds slender, golden, pointed

Black Cherry
(*Prunus serotina*)
- Native
- Underside has hair along the main leaf vein
- Two small glands located near leaf base

Japanese Flowering Crabapple
(*Malus floribunda*)
- Exotic
- Flower small, white or pink in spring
- Fruit round, red or yellow in fall
Hawthorn sp.  
*Crataegus sp.*  
Native  
- Flowers small, white with unpleasant smell in spring  
- Fruit reddish in fall  
- Wild varieties have thorns

American Holly  
*Ilex opaca*  
Native  
- Leaves dark, shiny, prickly  
- Evergreen  
- Persistent red berries in winter

Mulberry sp.  
*Morus sp.*  
Native/Invasive  
- Leaf shape variable (see pg. 7)  
- Fruit resembles blackberries  
- Milky sap

Eastern Serviceberry  
*Amelanchier canadensis*  
Native  
- White flowers in spring  
- Underside lighter

Crape Myrtle  
*Lagerstroemia indica*  
Exotic  
- Bark peeling, smooth  
- Flower color variable

Willow sp.  
*Salix sp.*  
Native/Exotic  
- Leaves narrow, elongated
Black Walnut  
*(Juglans nigra)*  
Native

- 7-23 leaflets
- Nuts round with green husk, woody shell
- Bark deeply furrowed

Tree of Heaven  
*(Ailanthus altissima)*  
Invasive

- Leaflets mostly smooth, few teeth near base
- Seeds have papery wings

Smooth Sumac  
*(Rhus glabra)*  
Native

- Leaflets toothed
- Twigs flat-sided, not hairy
- Reddish berries in upright cluster in winter

Staghorn Sumac  
*(Rhus typhina)*  
Native

- Leaflets are toothed
- Twigs hairy
- Reddish berries in upright cluster in winter

Winged Sumac  
*(Rhus copallina)*  
Native

- Leaflets not toothed
- Twigs hairy
- Leafstalks winged
- Reddish berries in upright cluster in winter
Bitternut Hickory
(Carya cordiformis)
Native
• 7-11 leaflets
• Twigs somewhat hairy
• Buds yellow, powdery

Mockernut Hickory
(Carya tomentosa)
Native
• 7-9 leaflets
• Twigs reddish brown, hairy
• End buds more than ½” long
• Nut husk thick

Shagbark Hickory
(Carya ovata)
Native
• 5-7 leaflets
• Twigs reddish-brown, smooth
• End buds more than ½” long
• Bark shaggy
• Nut husk thick

Pignut Hickory
(Carya glabra)
Native
• 5-7 leaflets
• Twigs smooth
• Buds silky
• Nut husk thin
Honey Locust  
*Gleditsia triacanthos*  
Native  
• Twigs, branches, and trunk have thorns up to 3” long

Black Locust  
*Robinia pseudoacacia*  
Native  
• Twigs, branches, and trunk have thorns up to ½” long

Mimosa/Silk Tree  
*Albizia julibrissin*  
Invasive  
• Leaves doubly compound  
• Flowers lacy, pink in spring and summer

Golden Rain-tree  
*Koelreuteria paniculata*  
Invasive  
• 7-17 leaflets  
• Yellow flowers in summer  
• Seeds enclosed in lantern-like capsule
Opposite, Simple, Entire, Lobed

Sugar Maple
(Acer saccharum)
Native
- 5 lobes
- Twigs and buds brownish
- Flower pale yellow
- Wings of fruit at right angles

Norway Maple
(Acer platanoides)
Invasive
- Lobes broad
- Twigs and buds grayish-brown
- Flowers and fruit green
- Milky sap when broken

Opposite, Simple, Entire, Not Lobed

Princess Tree
(Paulownia tomentosa)
Invasive
- Leaves hairy, heart-shaped
- Flowers pale purple, blue in spring before leaves

Catalpa sp.
(Catalpa sp.)
Exotic
- Leaves heart-shaped
- Flowers white with yellow purple, pink markings in spring
- Long seed pods through winter

Flowering Dogwood
(Cornus florida)
Native
- Leaf veins curve to follow edge of leaf
- Flowers with 4 white bracts
- Red berries in fall
Opposite, Simple, Toothed, Lobed

Red Maple
(Acer rubrum)
Native
- Twigs, buds, leafstalks reddish
- Flowers and fruit pink/red

Silver Maple
(Acer saccharinum)
Native
- Twigs and buds brownish
- Flowers green
- Underside silvery-white

Japanese Maple
(Acer palmatum)
Invasive
- 5-9 lobes
- Leaves red to purple in fall

Maple-leaved Viburnum
(Viburnum acerfolium)
Native
- 3 lobes
- Leaves coarsely-toothed

Opposite, Simple, Toothed, Not Lobed

Cherry-leaved Viburnum
(Viburnum prunifolium)
Native
- Leaves resemble cherry leaves
- Buds brown, not hairy

Arrowwood Viburnum
(Viburnum dentata)
Native
- Leaves coarsely-toothed
Opposite, Compound

Buckeye sp.  
(Aesculus sp.)  
Native/Exotic

- 5 leaflets arranged in a whorled pattern
- Horse chestnuts (*Aesculus hippocastanum*) have 7-9 leaflets

Box Elder  
(Acer negundo)  
Native

- 3-5 leaflets
- Papery fruit with wings
- Twigs green

White Ash  
(*Fraxinus americana*)  
Native

- 5-9 leaflets
- Leaf scar is “U” shaped

Green Ash  
(*Fraxinus pennsylvanica*)  
Native

- 7-9 leaflets
- Leaf scar is semi-circular
- Leaflet stalks have narrow wings
Index

American Sycamore (*Plantanus occidentalis*) ........................................ Pg. 7
Ash
  - Green (*Fraxinus pennsylvanica*) ..................................................... Pg. 15
  - White (*Fraxinus americana*) ............................................................. Pg. 15
Basswood, American (*Tilia americana*) ..................................................... Pg. 6
Beech, American (*Fagus grandifolia*) ....................................................... Pg. 8
Birch, River (*Betula nigra*) ..................................................................... Pg. 7
Black Cherry (*Prunus serotina*) ................................................................. Pg. 8
Black Gum (*Nyssa sylvatica*) ................................................................ Pg. 2
Black Walnut (*Juglans nigra*) ................................................................ Pg. 10
Box Elder (*Acer negundo*) ....................................................................... Pg. 15
Buckeye sp. (*Aesculus sp.*) ...................................................................... Pg. 15
Catalpa sp. (*Catalpa sp.*) ........................................................................ Pg. 13
Chesnut
  - American (*Castanea dentata*) ............................................................. Pg. 8
  - Chinese (*Castanea mollissima*) ........................................................ Pg. 8
Crape Myrtle (*Lagerstroemia indica*) ......................................................... Pg. 9
Eastern Redbud (*Cercis canadensis*) ......................................................... Pg. 5
Eastern Serviceberry (*Amelanchier canadensis*) ....................................... Pg. 9
Elm
  - American (*Ulmus americana*) ............................................................ Pg. 6
  - Siberian (*Ulmus pumila*) ..................................................................... Pg. 6
Flowering Dogwood (*Cornus florida*) .......................................................... Pg. 13
Ginkgo (*Ginkgo biloba*) .......................................................................... Pg. 5
Golden Rain-tree (*Koelreuteria paniculata*) ............................................ Pg. 12
Hawthorn sp. (*Crataegus sp.*) ................................................................. Pg. 9
Hickory
  - Bitternut (*Carya cordiformis*) .......................................................... Pg. 11
  - Mockernut (*Carya tomentosa*) ......................................................... Pg. 11
  - Pignut (*Carya glabra*) ........................................................................ Pg. 11
  - Shagbark (*Carya ovata*) ..................................................................... Pg. 11
Holly, American (*Ilex opaca*) ................................................................ Pg. 9
Hophornbeam (*Ostrya virginiana*) ............................................................. Pg. 7
Hornbeam, American (*Carpinus caroliniana*) ........................................... Pg. 7
Japanese Flow. Crabapple (*Malus floribunda*) ......................................... Pg. 8
Locust
  - Black (*Robinia pseudoacacia*) .......................................................... Pg. 12
  - Honey (*Gleditsia triacanthos*) ........................................................ Pg. 12
Magnolia
  - Southern (*Magnolia grandiflora*) ....................................................... Pg. 1
  - Sweetbay (*Magnolia virginiana*) ........................................................ Pg. 1
  - Umbrella (*Magnolia tripetala*) ........................................................... Pg. 1
Maple
  - Japanese (*Acer palmatum*) ................................................................. Pg. 14
  - Norway (*Acer platanoides*) .............................................................. Pg. 13
  - Red (*Acer rubrum*) ........................................................................... Pg. 14
  - Silver (*Acer saccharinum*) .............................................................. Pg. 14
  - Sugar (*Acer saccharum*) ................................................................. Pg. 13
Mimosa (*Albizia julibrissin*) ................................................................. Pg. 12
Mulberry sp. (*Morus sp.*) .................................................................... Pgs. 6,7,9

Oak
  - Black (*Quercus velutina*) ................................................................. Pg. 3
  - Blackjack (*Quercus marilandica*) ..................................................... Pg. 3
  - Chestnut (*Quercus montana*) ........................................................... Pg. 4
  - Northern Red (*Quercus rubra*) ........................................................ Pg. 3
  - Pin (*Quercus palustris*) ................................................................... Pg. 3
  - Post (*Quercus stellata*) ................................................................... Pg. 4
  - Scarlet (*Quercus coccinea*) ............................................................. Pg. 3
  - Southern Red (*Quercus falcata*) ...................................................... Pg. 3

Willow
  - Green (*Salix nigra*) .......................................................................... Pg. 4
  - Willow (*Salix nigra*) ......................................................................... Pg. 5

Pawpaw, Common (*Asimina triloba*) ......................................................... Pg. 1
Pear, Bradford (*Pyrus calleryana*) .............................................................. Pg. 2
Persimmon, Common (*Diospyros virginiana*) ......................................... Pg. 1
Princess Tree (*Paulownia tomentosa*) ...................................................... Pg. 13
Rhododendron sp. (*Rhododendron sp.*) ................................................ Pg. 2
Sassafras (*Sassafras albidum*) ................................................................. Pgs. 2,4
Spicebush (*Lindera benzoin*) ................................................................. Pg. 2

Sumac
  - Smooth (*Rhus glabra*) ....................................................................... Pg. 10
  - Staghorn (*Rhus typhina*) ................................................................ Pg. 10
  - Winged (*Rhus copallina*) ................................................................ Pg. 10

Sweetgum (*Liquidambar styraciflua*) ......................................................... Pg. 7
Tree of Heaven (*Ailanthus altissima*) ....................................................... Pg. 10
Tulip Poplar (*Liriodendron tulipfera*) ....................................................... Pg. 4

Viburnum
  - Arrowwood (*Viburnum dentata*) ....................................................... Pg. 14
  - Cherry-leaved (*Viburnum acerifolium*) ........................................... Pg. 14
  - Maple-leaved (*Viburnum acerifolium*) ............................................. Pg. 14
  - Willow sp. (*Salix sp.*) .................................................................... Pg. 9

Witch-hazel (*Hamamelis virginiana*) ...................................................... Pg. 6
Images:
American Basswood and Post Oak Images: Earl “Bud” Reaves.

Blackjack Oak Image: The original uploader was Ed Uebel at English Wikipedia [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0/)], via Wikimedia Commons.

Hophornbeam Image: Matthew Sarver.

Pignut and Shagbark Hickory Images: David Mow, https://www.flickr.com/photos/90940641@N08/with/11802696515/

Scarlet Oak Images: Evelyn Fitzgerald https://www.flickr.com/people/evelynfitzgerald/

Smooth Sumac Image: Micah Hahn, http://www.bio.brandeis.edu/fieldbio/Survival/Pages/about.html

All images other taken by Kerry Wixted and Madeline Koenig.

Resources:


