

The All Season Pocket Guide
**To Identifying Common
Tennessee Trees**



Mike Williams

INSTRUCTIONS FOR PUBLISHING BOOKLET

This booklet is formatted for do-it-yourself printing and assembly or downloading onto a disc and taken to the local print shop where they will do the job at a nominal cost. If you decide to print the book yourself you will need:

MATERIALS LIST

1. 16 pages of high quality 24# paper.
2. 1 sheet of photographic paper or card stock for cover.
3. 1 sheet of card stock or standard paper for use as a cutting guide.
4. A color printer capable of printing sixteen pages of text and pictures.
5. A paper cutter capable of cutting at least 17 sheets of paper at one time.
6. A heavy duty stapler with at least a 4¼" deep throat.

PRINTING INSTRUCTIONS

1. Open file entitled Tree Identification Book.
2. Print even pages
3. Stack pages so that the last page printed is on the bottom of the paper stack and the first page printed is on the top. Be careful to keep all pages stacked in order.
4. Insert paper in printer so that the unprinted side of the paper will be printed and the top of the page will be the same for both sides.
5. Print odd pages.
6. Check stack to make sure consecutive numbers face one another. If they do not, turn the pages over a second time to put them in the proper order. Properly stacked page 61 ...All Season Pocket Guide should be on top of the stack, face up and 29...30 should be on the bottom, face down
7. Open file entitled Cover Page
8. Print file on photographic paper or card stock and place it face up on top of the stack.

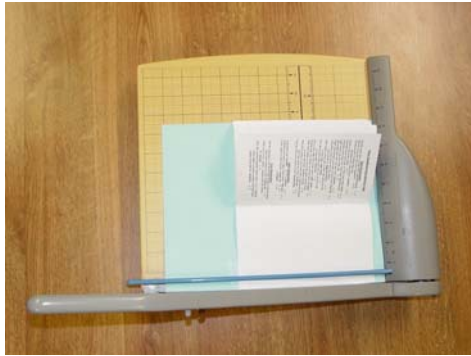
ASSEMBLY INSTRUCTIONS

1. Set up the stapler to staple exactly 4¼" deep (the center of the page).
2. Staple the booklet together with a staple placed in the center of the page, approximately 1½" from the top of the page and a second staple placed in the center of the page approximately 5½" from the top of the page.
3. Use the paper cutter to trim waste from the bottom of the page by trimming the paper 6⅞" long.
4. Fold the assembled pages at the center with the cover on the outside to form a book.

You will notice that the act of folding the book together results in the right edge of the pages forming a protruding V shape. The book is usable in this condition but it is easier to thumb through if the V is trimmed flat. This can be accomplished using the paper trimmer to trim off the edge. Most paper trimmers will not cut through this much paper cleanly but they will cut half the thickness at a time. The following steps will help trim straight.

TRIMMING INSTRUCTIONS

1. Make a cutting guide by laying the open book down on a standard piece of card stock or paper and lining up the edges.
2. Leave the guide showing at each end of the book so you can see to make alignment on the cutter.
3. Tape the booklet in place along the top and bottom edge, using two short pieces of tape. Once secured, the outside edge of the bottom book cover should be aligned with the outside edge of the paper.
4. Lay the book and guide (guide on bottom) on the paper cutter.
5. Line up the edge of the guide with the cutting edge of the cutter.



6. Turn back the top half of the booklet to get the pages back from the edge of the cutter while pressing down on the fold along the stapled edge to maintain the V shape.
7. Hold on tight and trim off the lower pages.



8. Remove the paper guide from the booklet.
9. Turn the booklet over to expose the cut pages on top of the uncut pages.
10. Align the cut edge of the booklet flush with the cutter blade and trim off the bottom pages.
11. The book is now finished and ready for use.

Winter Identification Quick Reference Guide

Bark Characteristics

Smooth, mouse gray, no large warts: **American beech** ... 15, 23
Smooth, mouse gray with warts: **hackberry** ... 18, 28
Peeling tan bark revealing large, smooth, pale
blue-green/silver gray patches: **sycamore** ... 13, 32
Thorns on tree trunk: **locust** ... 20, 30
Chocolate brown inner bark, no white rings: **black walnut** ... 20, 25
Chocolate brown inner bark, white rings: **American elm** ... 17, 37
Light cream to tan inner bark: **ash** ... 10, 24
Pale orange inner bark, root beer smell: **sassafras** ... 12, 31
Bright yellow/orange bitter inner bark, no smell: **black oak** ... 14, 40
Long strips of hard, armor like bark peeling
from bottom up: **shagbark hickory** ... 19, 33
Hard, tough to break, gray to black bark peels from side
in long ridges: **sugar maple** ... 9, 47
Soft, easily broken light gray bark may peel from side
in long ridges: **white oak** ... 11, 50
Silver-white chalk dust in bark cracks: **yellow-poplar** ... 13, 51
Variable bark with pimples on smooth parts: **red maple** ... 8, 55
Wide silver streaks on top of bark plates, pruned cleanly
no sap smell: **northern red oak** ... 14, 54
Wide silver streaks on top of bark plates, retained dead branches,
sap smells like urine: **scarlet oak** ... 14, 44
Pine tree with resin pockets on bark: **shortleaf pine** ... 5, 45

Limb Characteristics

Long green twigs: **boxelder** ... 10, 41; or **sassafras** ... 12, 31
Branches from trunk in wagon wheel whorls: **white pine** ... 6, 34
Corky ridges on small branches: **winged elm** ... 18, 35
or **sweetgum** ... 15, 48

Tree Characteristics

Soft lacy appearance with filtered light through evergreen needles,
dead limbs retained on trunk: **Virginia pine** ... 5, 49
Thick crown of tiny, prickly, evergreen scale like needles:
E. redcedar ... 5, 26
Soft, flat, layered branches filled with ½" to ¾" long flat,
blunt tipped evergreen needles with blue/white
stripes along bottom: **hemlock** ... 6, 29

The All Season Pocket Guide To Identifying Common Tennessee Trees



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or drawn by
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2003

**Common and Scientific Names
For Trees Listed In This Booklet**

- Oak (*Quercus*)
 Black oak (*Quercus velutina*)...14, 40
 Blackjack oak (*Quercus marilandica*)...14
 Cherrybark oak (*Quercus falcata*)...14
 Chestnut oak (*Quercus prinus*)...11, 42
 Chinquapin oak (*Quercus muehlenbergii*)...11
 Northern red oak (*Quercus rubra* L.)...14, 55
 Nuttall oak (*Quercus nuttallii*)...14
 Overcup oak (*Quercus lyrata*)...11
 Pin oak (*Quercus palustris*) ...14
 Post oak (*Quercus stellata*)...11
 Scarlet oak (*Quercus coccinea*)...14, 44
 Southern red oak (*Quercus falcata*)...14, 57
 Shumard oak (*Quercus shumardii*)...14
 Swamp chestnut oak (*Quercus michauxii*)...11
 Swamp white oak (*Quercus bicolor*)...11
 Water oak (*Quercus nigra* L.)...14
 White oak (*Quercus alba* L.)...11, 50
 Willow oak (*Quercus phellos* L.)...14
- Pine (*Pinus*)
 Loblolly pine (*Pinus taeda* L.)...5, 43
 Shortleaf pine (*Pinus echinata* Mill.)...5, 45
 Virginia pine (*Pinus virginiana*)...5, 49
 White pine (*Pinus strobus* L.)...6, 34
- Red mulberry (*Morus rubra*)...12
 Sassafras (*Sassafras albidum*)...12, 31
 Sourwood (*Oxydendrum arboreum*)...19, 46
 Sweetgum (*Liquidambar styraciflua*)...15, 48
 Sycamore (*Platanus occidentalis*) ...13, 32

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Poison Ivy Alert

POISON IVY □ Poison ivy is a common forest vine that grows along the ground and often climbs trees. When it climbs a tree it sometimes becomes so large and thick it can be misidentified as being part of the tree it is attached to. Climbing poison ivy vines are dark brown, very “hairy” looking, and closely attached to the supporting tree. The many closely spaced branches of the vine may reach out 3’ or more from the tree. The vine may climb 20’ or more up the tree. **Poison ivy leaves are attached to branch ends in clusters of 3.** Leaves average 3” to 5” long, 2” to 4” wide. **They may be entire, have a tooth shaped lobe on one side, or have one tooth shaped lobe on each side.**

foliage



vine



Contact with almost any part of the plant any time of year can cause the skin to break out in a severe, itchy rash. Avoidance is the best protection.

Virginia creeper is also a common vine that climbs forest trees but human contact does not normally cause a rash. Virginia creeper has leaves in clusters of 5, is often wrongly called poison oak, and is harmless.

1

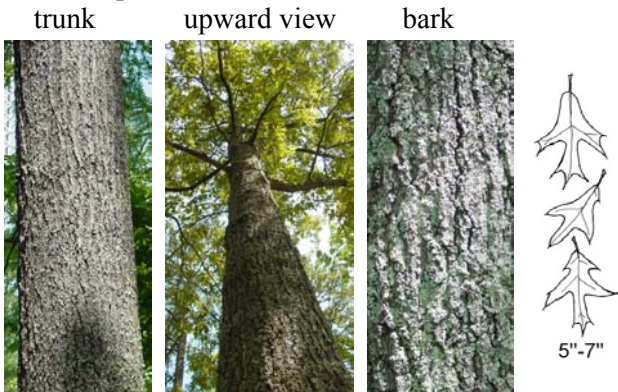
Common and Scientific Names For Trees Listed in this Booklet.

American beech (*Fagus grandifolia*)...15, 23
 Ash (*Fraxinus*)
 Green ash (*Fraxinus pennsylvanica*)...10, 24
 White ash (*Fraxinus americana*)...10, 24
 Bald cypress (*Taxodium distichum* L.)...6, 38
 Black cherry (*Prunus serotina*)...16, 39
 Blackgum (*Nyssa sylvatica* Marsh) ...16, 53
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 Eastern red cedar (*Juniperus virginiana* L.)...5, 26
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 Winged elm (*Ulmus alata*)...18, 35
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 Bitternut (*Carya cordiformis*)...19, 54
 Mockernut (*Carya tomentosa*)...19, 54
 Pignut (*Carya glabra*)...19, 54
 Shagbark hickory (*Carya ovata*)...19, 33
 Locust
 Black locust (*Robinia pseudoacacia*)...20, 30
 Honey locust (*Gleditsia triacanthos*)...20, 30
 Maple (*Acer*)...8

- Red maple (*Acer rubrum*)...8, 56
- Silver maple (*Acer saccharinum*)...9
- Sugar maple (*Acer saccharum*)...9, 47

Trees that Require Close Examination
Southern red oak

SOUTHERN RED OAK- Southern red oak is one of Tennessee's most common trees. It usually has a round, well pruned trunk with a slight swell at the base and good form up to strong, well spaced limbs at the top. **The bark is very rough but thin (less than 1/4" thick) giving the illusion of its being compressed and glued to the tree.** This bark is hard, cool to touch, and rough textured. Bark patterns vary from long, rough topped ridges and shallow valleys to clusters of plastered wet corn flakes. Bark color varies from light gray to black. Lichens growing on the bark often give the tree a greenish look. The inner bark is various shades of brown, sometimes with cream colored short, fine lines and flecks present.



Mature leaves are usually 5" to 7" long and dark green. The long central lobe and two shorter opposite side lobes often give leaf a "turkey foot" look. Leaves may also have smaller additional side lobes. All lobes are bristle tipped.

Tennessee Terrain

Trees prefer to grow in places that suit their particular needs. Most like the deep, well drained soils of flat to easy rolling land. But, some want wet places like swamps or bottoms; some moist, well-drained coves, hollows or north facing slopes. Some prefer hot, dry ridge tops and warmer, south facing slopes. Knowing which trees are most likely to be encountered in different parts of Tennessee and on given sites can help narrow down likely tree choices and speed up proper identification. Check the following guides to find the trees most likely to be encountered on any given site in Tennessee.

Trees Likely to be Found Growing on Flat, Well Drained Land

- | | | |
|------------------|-----------------|-------------------|
| ash | beech | black cherry |
| black oak | black walnut | blackgum |
| chinquapin oak | elm | flowering dogwood |
| hackberry | hickory | locust |
| northern red oak | red maple | sassafras |
| scarlet oak | short leaf pine | sour-wood |
| southern red oak | sugar maple | Virginia pine |
| white oak | white pine | yellow-poplar |

Trees Likely to be Found Growing in Swampy Areas and Along Streams:

ash
boxelder
mulberry
pin oak
silver maple
sweetgum
willow oak

baldcypress
cherrybark oak
nuttall oak
red maple
swamp chestnut oak
sycamore
yellow-poplar

beech
hemlock
overcup oak
shumard oak
swamp white oak
water oak

red maple
southern red oak

scarlet oak
Virginia pine

shortleaf pine

2

**Trees Likely to be Found Growing in
Deep, Well-Drained Coves**

ash
black oak
chinquapin oak
hickory
scarlet oak
southern red oak
white pine

beech
black walnut
elm
northern red oak
shortleaf pine
sugar maple
yellow-poplar

black cherry
blackgum
hemlock
red maple
shumard oak
white oak

**Trees Likely to be Found Growing on
Dry South Facing Middle Slopes**

ash
blackjack oak
eastern redcedar
loblolly pine
red maple
sour-wood

black oak
chestnut oak
hackberry
locust
scarlet oak
southern red oak

blackgum
chinquapin oak
hickory
post oak
shortleaf pine
Virginia pine

white oak

**Trees Likely to be Found Growing on
Dry Ridge Tops**

ash
chestnut oak
hickory

black oak
eastern redcedar
loblolly pine

blackjack oak
hackberry
post oak

3

Trees that Require Close Examination – red maple

RED MAPLE – Red maple is a challenge to identify because of the way it changes characteristics as it gets larger. This tree has slick, light gray bark when it is small. As it gets larger it develops a thicker, grayish brown, flaky bark that is heaviest at the base and becomes smoother up the trunk. Full grown trees may have flaky bark all the way up into the limbs. While this bark is in transition and smooth patches of bark are still present, **very small pimples** can usually be found scattered over the smooth surface. The crotch between trunk and limbs on red maple is usually narrow. Slender young branch tips are often bright red.

bark characteristics



twig, leaf, fruit



Leaves are 2½” to 4” in length and width with wide but jagged edges along the lobes. Usually there are three large lobes and sometimes two smaller ones. The sinuses between each lobe form a sharp V notch.

56

Trees that Require Close Examination – N. red oak

NORTHERN RED OAK – Northern red oak often grows to be a very large, cleanly pruned tree. It has strong, well spread limbs and dark gray bark that has long cracks or fissures running up and down the tree between long, wide slightly concave plates of bark. Looking up into the tree will usually reveal **long, wide silver streaks along the tops of the bark plates** on the trunk and major branches. Northern red oak can be confused with scarlet oak but northern red oak is usually a larger, well pruned, better formed tree. The northern red oak sap does not smell like urine.

bark



upward view



5"-9"
long

Leaves are simple, alternate, 5” to 9” long and 3” to 5” wide, broader toward the tip, divided into 7 to 9 lobes, each lobe being somewhat coarsely toothed, bristle-tipped and firm, dull green above, paler below, often turning a brilliant red after frost.

55

Summer Leaf Key

Definitions needed to understand Tree key

The following terms need to be understood to successfully understand and use the following tree guide.

1. Opposite growth pattern Twigs and/or leaves are attached to the limb directly across from one another.
2. Alternate growth pattern twigs and/or leaves are attached to the limb in a zigzag pattern where the

attachments on either side are not directly across from one another.

3. Simple leaf □ A leaf that has only one leaflet attached to the tree limb.
4. Compound leaf □ A leaf that has two or more leaflets attached to a central leaf stem that is in turn attached to the tree limb.
5. Leaf lobe □ The portion of the leaf that projects out from the central leaf like a finger on a hand.
6. Lobe spikes □ Needle like point sticking out at the end of each lobe
7. Leaf sinus □ The dip in the leaf between the lobes.
8. Toothed margin □ Coarse to fine serrated edges.

Leaves are needle-like or scale-like (go to 1)
 Leaves are broad, flat and mostly deciduous (go to 2)

1

Needle like or Scale Like Leaves
 eastern redcedar, southern yellow pines,
 white pine, hemlocks, bald cypress

1a - Very small blue-green scale like leaves growing on all four sides in tight aromatic prickly top.
eastern redcedar



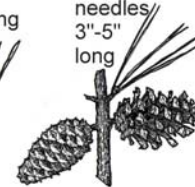
1b - Needles growing in bundles with 2 to 3 needles in each bundle.

southern yellow pines

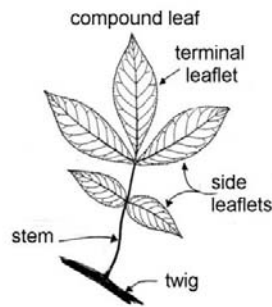
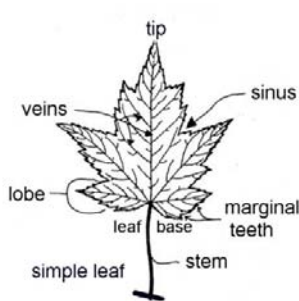
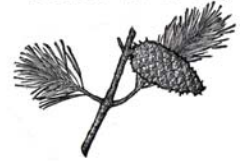
loblolly pine



shortleaf pine



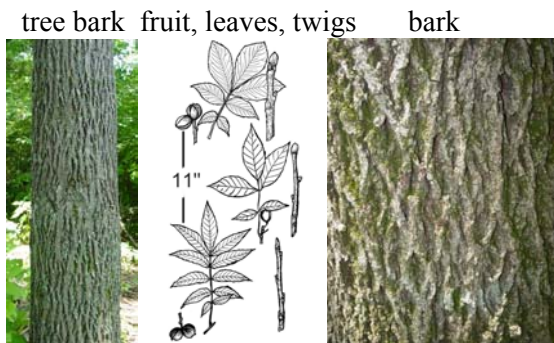
Virginia pine
 needles 1 1/2"-3" long



**Leaf Key to Trees
 Common in Tennessee**

Trees that Require Close Examination □ hickory

HICKORY – The tight barked members of the hickory species can be difficult to recognize in the winter. Distinguishing characteristics include **tight, gray bark, ranging from tight and “glued on” bark with very shallow X furrows to a rougher bark that makes long, rough ridges and valleys up and down the tree.** The ridges often crack into sections with cross cracks running horizontal to the tree. The bark is very tough and often feels like steel armor. **There is usually a splattering of small silver flecks scattered up and down the bark.** Smaller trees in the understory will have short limbs growing at right angles to the tree trunk. Taller trees still competing in the overstory for light may have limbs that fork upward with longer, stronger limbs. Branch ends are short and wavy.

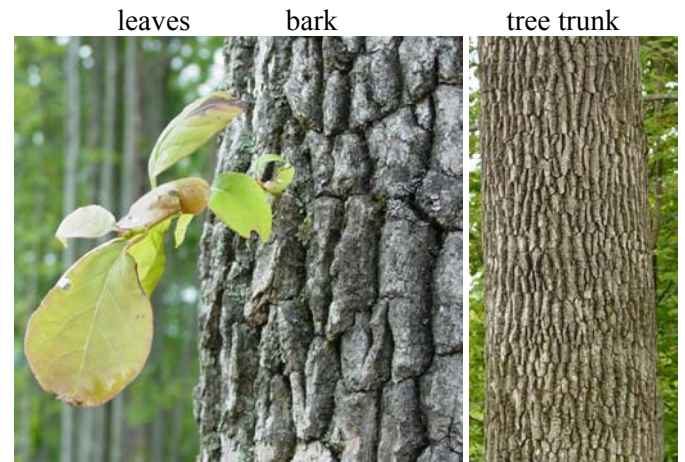


Leaves have alternate arrangement with compound leaves. The leaf is 8” to 14” long with from 5 to 9 fine toothed leaflets that are usually yellow green on top and paler on the bottom. Leaflets come off a central leaf stem at intervals along the side and off the end of the stem.

54

Trees that Require Close Examination □ **black gum**

BLACK GUM □ Black gum looks like an oak tree that had a bad hair day! The silver gray to almost black bark of larger black gums often so closely resembles oak or elm that at first glance the tree may be misidentified. **Looking up will reveal a crown filled with unusually small, relatively short, often twisted branches growing out of the tree at 90° angles.** The lower branches of younger trees will often droop dramatically, especially if the tree is exposed to enough sunlight to encourage side growth.



The leaves are simple; 2” to 5” long and 1½” to 3” wide. The edges are almost always smooth. Shape varies from broadly oval to narrow at the base, gently flaring out to a maximum width at a point approximately ¼ of the way toward the end of the leaf, then rounding down to the tip on the end of the leaf. Most leaves have a short, narrow, protruding tip on the end. Healthy leaves are a deep, dark, lustrous, green color.

53

1c - Soft, flexible, blue-green needles, 3 to 5 inches long and growing in bundles of 5. Each needle

has white lines along the length of the bottom edge. Dark gray-black bark; limbs growing from trunk at distinct intervals in whorls.

eastern white pine



1d - Flat needles are $\frac{3}{4}$ " long with blunt ends. Two light blue lines parallel along the length of the bottom of each leaf. Needles lay flat (eastern). Needles stick out in all directions (Carolina).

hemlocks

eastern hemlock

Carolina hemlock



1e - Needles are lime green to yellow-green, $\frac{1}{2}$ " to $\frac{3}{4}$ " long, growing feather like in two rows along lateral branches. Needles turn dull red and fall off in fall.

baldcypress

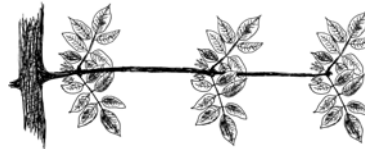


Leaves That Are Broad and Flat

2a. Leaves, buds, and branches that have opposite arrangement with simple leaves (go to A)



2b. Leaves, buds, and branches that have opposite arrangement with compound leaves (go to B).



2c. Leaves, buds, and branches that have alternate arrangement with simple leaves (go to C).



2d. Leaves, buds, and branches that have alternate arrangements with compound leaves (go to D).

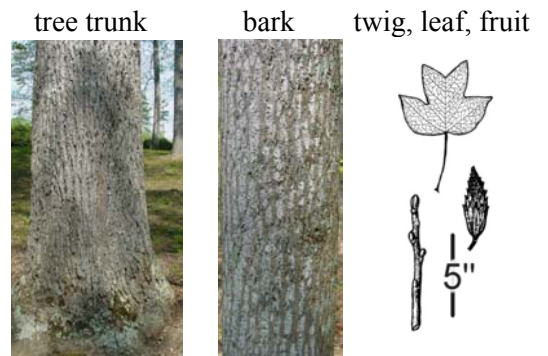


TREES THAT REQUIRE CLOSE EXAMINATION

Blackgum ...53
Hickory (other than shagbark) ...54
Northern red oak ...55
Red maple ...56
Southern red oak ...57

Trees of Medium Difficulty – yellow-poplar

YELLOW-POPLAR – Yellow-poplar (tulip-poplar) is a distinctive tree that grows gun barrel straight and round. The bark is smooth and mouse gray in small trees, becoming rougher and more butternut brown as the tree grows larger. On all but the largest trees, the bark usually looks more like it was molded on the tree than split and cracked away as the tree grew. **The single characteristic that makes identification relatively easy is the presence of what looks like white to silver white chalk dust inside the channels and depressions of the bark.** This silver white dusting is consistent from bottom to top of the tree. Further identifying characteristics include clean, pruned trunks that may be very tall with a relatively small top, the tendency to grow in pure stands, and leftover seed-pods that look like small, peeled bananas standing upright on the ends of the upper branches.



The leaves are simple, 4” to 6” in length and breadth, four-lobed, tulip shaped, dark green in summer, turning a bright yellow in fall.

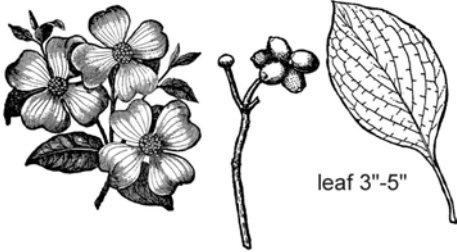
A

Opposite Arrangement- Simple Leaves

flowering dogwood, red maple,
sugar maple, silver maple

A-1 Dark green leaves are football shaped, 3" to 5" long and 2" to 3" wide with smooth but wavy outer edges. The veins make pronounced sweeping upward curves from the center line of the leaf to the outside edge.

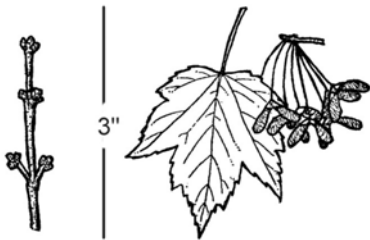
flowering dogwood



A-2 Smooth leaves are 2½" to 4" in length and width with wide but jagged edges along the lobes.

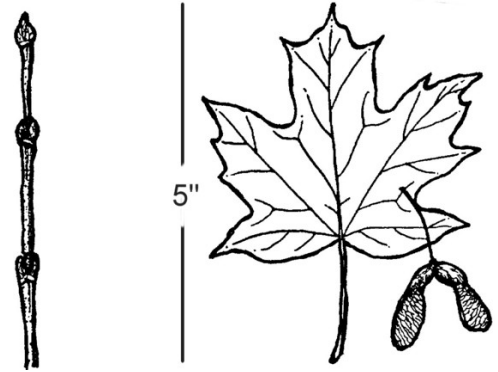
Usually there are three large lobes and sometimes two smaller ones. The sinuses between each lobe forms a sharp V notch.

red maple



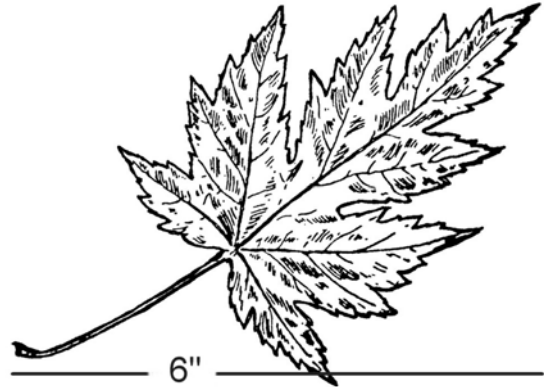
A-3. Smooth leaves are 3" to 5" long and wide with Smooth edges along five main lobes that have pointed tips. Deep U shaped sinuses between lobes.

sugar maple



A-4. Leaves are 5" to 7" long and, deeply lobed, with large marginal teeth, silvery beneath.

silver maple



Trees of Medium Difficulty □ white oak

WHITE OAK – White oak has one of the lightest colored barks in Tennessee’s forests. It typically is **very light gray with a texture that varies from medium rough and tight bark to long strips cracking loose and peeling from the side**. The bark feels soft to the touch, warm, and crumbles off the tree when rubbed. Sections of bark that are peeling loose from the side can be easily broken off (unlike shagbark hickory that peels from the bottom and resists breakage). White oaks are often among the largest trees in the forest. They have large, strong, well-spaced branches.

bark



upward view



The leaves are 5” to 9” long and about half as broad. They are deeply divided into 5 to 9 rounded, finger-like lobes with no spikes. Mature leaves are bright green above and much paler below.

Trees of medium Difficulty – Virginia pines

VIRGINIA PINE (a southern yellow pine) □ Virginia pines usually grow up together as a pure stand but sometimes grow mixed with shortleaf and other pines. The distinguishing characteristics include **Thin, brown, flaky bark, usually complete with dead stubs up and down the trunk**. The **2 needles per bundle** tree crown is fairly thin and uniform throughout the crown instead of the usual heavy clumps of greenery between open spaces seen in most southern yellow pines. **Looking up through the tree’s canopy presents the overall effect of a consistently thin, soft, lacy, filtered light**. The cones or burrs average about 2” in length. They are narrow and often slightly curved, with small prickles.

trees



bark



upward view



The twisted and spreading needles are borne two in a cluster. They vary from 1½” to 3” in length, are yellow green in color, and are shorter than those of any other pine native to the State.

49

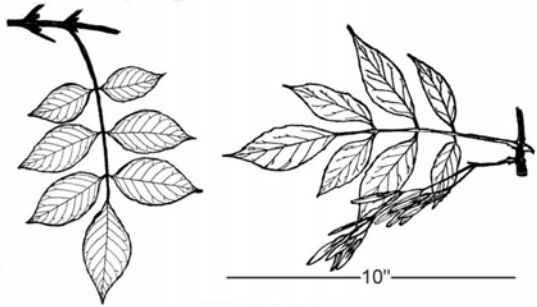
B

Opposite Arrangement- Compound Leaves
ash, boxelder

B-1. 8” to 12” leaves have 3 to 7, 1½” long leaflets growing along the sides and end of the leaf stalk. Twigs ends look large and blunt. Green ash has a prominent bud nestled in the crotch between the twig and leaf. White ash has a small bud that is buried in the crotch and not readily visible to the naked eye.

green ash

white ash



B-2. Leaves are 8” to 12” long and have 2” to 4” leaflets that have several shapes with some jutting out to the side like pointed thumbs. Twigs are long, slender and often green.

boxelder (boxwood)



10

C.

Alternate Arrangement- Simple Leaves

- Leaves have rounded lobes (go to C-1)
- Leaves have pointed lobes (go to C-2)
- Leaves have no lobes (go to C-3)

C-1

Leaves have rounded lobes

white oaks, sassafras, mulberry

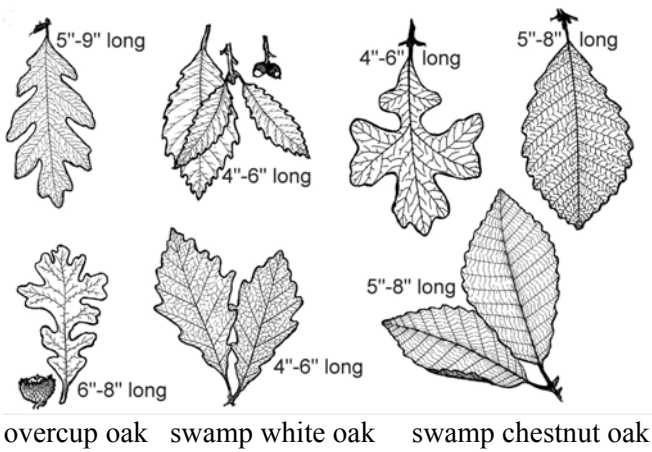
C-1a. Leaves are tough, varying in size and shape but Almost always have the same number of lobes on each side of the leaf. The outside edge of the leaf is smooth with the main leaf vein ending at the end of the center leaf lobe while veins to the other lobes come off different places along the central vein. Ends

of lobes are rounded.

white oaks

upland white oaks

white oak chinquapin oak post oak chestnut oak



overcup oak swamp white oak swamp chestnut oak

lowland white oaks

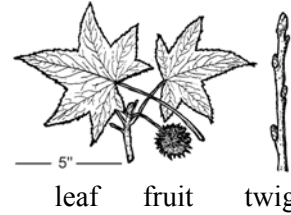
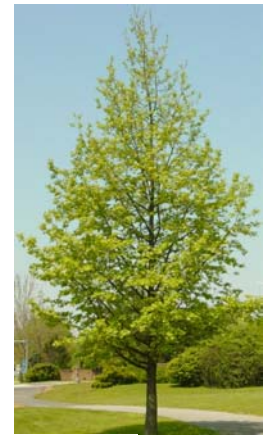
11

Trees of Medium Difficulty – sweetgum

SWEETGUM – Sweetgum has a light gray, rough cork like bark. It is tall, with a narrow “tee pee” shaped top. Many of the limbs may have one or more corky ridges growing along their lengths. The fruit capsules are usually about the size of a golf ball and look like starbursts on a stem because they have sharp open points pointing in all directions

bark

tree



leaf fruit twig

The simple, alternate star-shaped leaf, with its 5 to 7 points or lobes, is 5” to 7” across and very aromatic. In the fall its coloring is brilliant, ranging from pale yellow through orange and red to a deep bronze.

48

Trees of Medium Difficulty – sugar maple

SUGAR MAPLE – Sugar maple can often be identified by **the often present, solid black, burned looking areas on the lower parts of the tree trunk and/or the long strips of tight, side curling bark that is very tough and hard to break off.** Young trees are smooth and gray but as the tree gets larger, the bark begins to turn black at the base and begins to split and curl from the side. Even when it is curling, the bark remains very

tough and hard to break off. **Sugar maples grown in the woods usually have limbs that grow out from the tree at ninety-degree angles to the tree trunk.** It is a relatively short tree

bark variations



bark variations



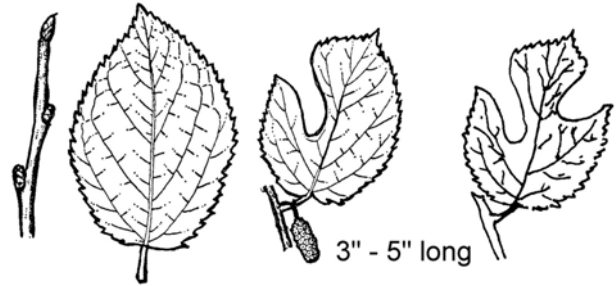
twig, leaf, seed



C-1c. Tree may have mixture of 3" to 5" long, rough textured leaves with some leaves having no lobes, two lobes or three lobes all growing together to form the tree crown. The edges of the leaves are rough and jagged toothed.

red mulberry

The leaves are 3" to 5" across, simple, opposite, with 3 to 5 pointed and sparsely toothed lobes. The divisions between the lobes are rounded. The leaves are dark green on the upper surface, lighter green beneath, turning in autumn to brilliant shades of orange and clear yellow.



47

C-1b. Tree may have a mixture of 3" to 5" leaves having

no lobes, two lobes, or three lobes all growing together in the crown. Edges of the leaves are smooth

giving the lobed leaves the look of mittens. Crushed leaves have orange peel smell.

sassafras

12

C-2

Leaves Have Pointed Lobes

Yellow-poplar, sycamore, sweetgum, red oaks,

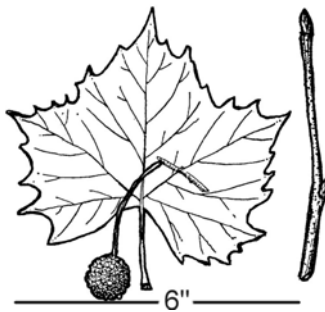
C-2a. Leaves the size of a man's hand, have four pointed lobes forming a distinct tulip shape.

yellow-poplar (tulip-poplar)



C-2b. Leaf is wide and irregularly fan shaped, usually slightly longer and wider than a man's hand. Veins for the leaf all originate at the base stem of the leaf and fan out like fingers into the lobes.

sycamore

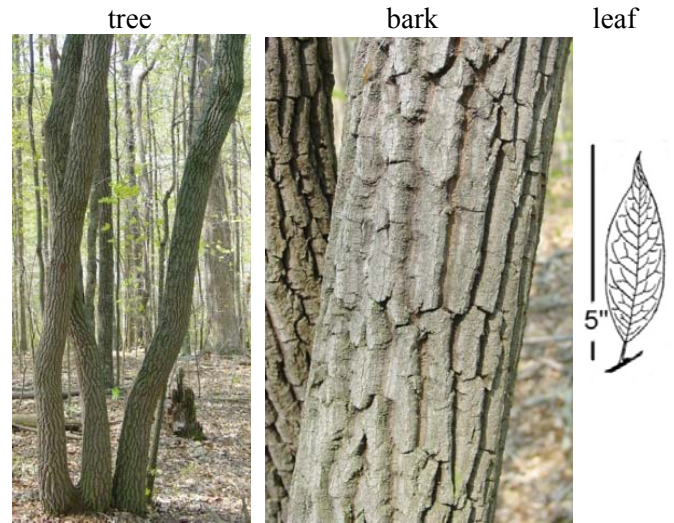


13

Trees of Medium Difficulty – sourwood

SOURWOOD – Sourwood is a small tree (usually less than 10" through the middle at chest height). It has **thick, chunky silver gray to reddish brown bark** and often grows with a curved trunk and top that droops

over. If you are lucky, there will be long, fine, clusters of very small fruit capsules hanging down from the ends of the branches. First year twigs are strong, straight, and often are bright red in color.



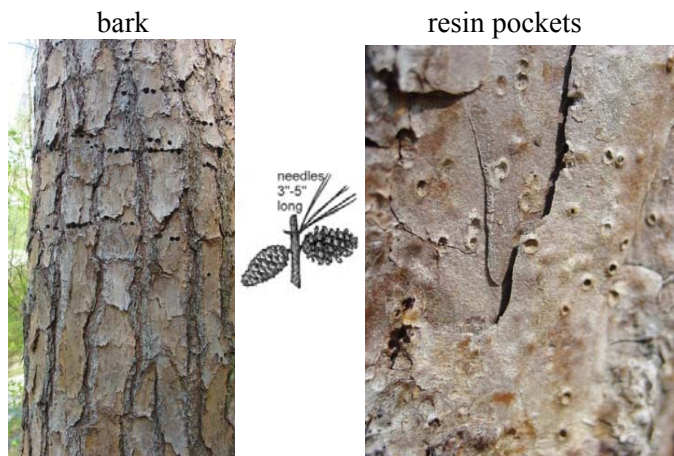
The leaves are from 5" to 7" long and 1" to 3" wide, simple, alternate, with finely toothed margins. Chewing small twigs or rolling up and chewing on the leaf will result in a very sour taste. Chewing the leaf will usually produce the strongest taste.

46

Trees of Medium Difficulty – shortleaf pine

SHORTLEAF PINE – Shortleaf pine can be found growing as single trees mixed throughout the hardwood forest. It has a tall, brown trunk covered with large, platy bark on a tree trunk that is usually cleanly pruned.

The tree top is usually made up of thick clumps of foliage growing at the ends of the limbs with daylight present between the clumps. **The distinguishing characteristic is the often-present resin pockets on the surface of the tree's bark.** These pockmarks are small but easily visible with the naked eye and give the appearance of **tiny replicas of moon craters.** They are usually round and indented in the center with a slightly raised perimeter. Cones or burrs are small, 1½" to 2½" long with sharp prickles, generally clustered along the twig.

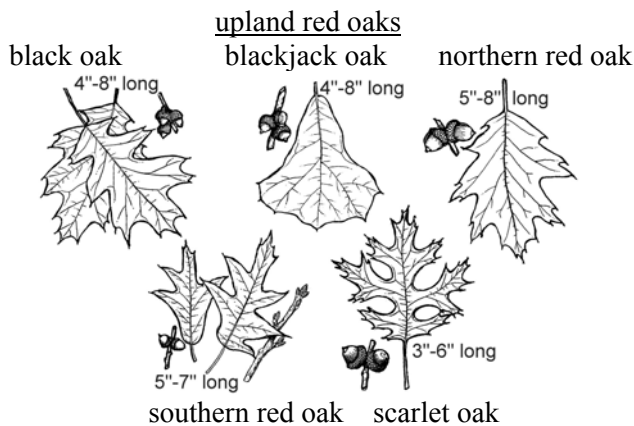


The needles are in clusters of two or three, from 3" to 5" long, slender, flexible, and dark green.

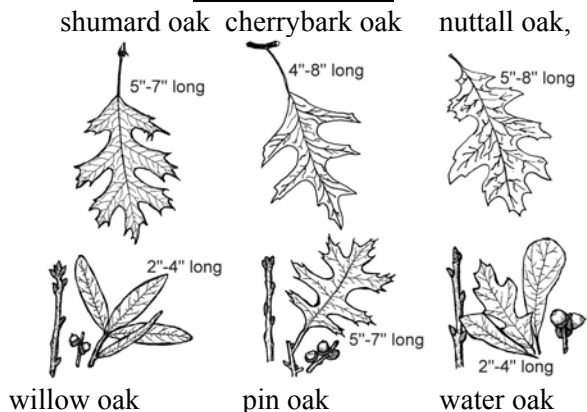
45

C-2c. Leaves are tough and vary in size and shape but usually are from 4" to 7" long and 1" to 5" wide, with prominent lobes and deep, rounded sinuses between lobes. There is a definite spike on the end of each lobe. Leaf veins to lobes start from several places along the central leaf vein.

red oaks



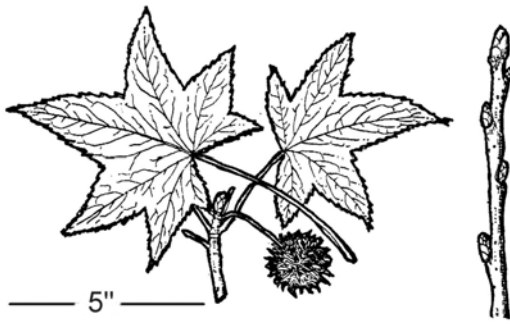
lowland red oaks



14

C-2d. 4" to 7" wide leaf forms a distinctive five pointed star shape with deep V sinuses and long pointed lobes.

Leaf veins fan out from the base of the leaf at the stem.
sweetgum



branches hanging up and down the trunk and a swollen, highly figured, base. It often has **long silver stripes up and down the trunk.** This is especially true toward the crown. The bark is tight, dark gray, and hard to the touch with shallow ridges running up and down the tree between wide flat plates of bark. Drilling through the bark with a pocket knife will reveal a light pink color and **sap that has a pungent urine smell.**

swollen base

upward view

C-3

Leaves have no lobes

American beech, black cherry, blackgum, elms, hackberry, sour-wood

C-3a. Spear shaped, sharp tipped leaves 3" to 5" long with toothed edges and very prominent, straight veins that stand out along the bottom of the leaf. Twig has pronounced zigzag pattern with long, slender bud and leaf at the outside turning points of the pattern.

American beech



15

Trees of Medium Difficulty – scarlet oak

SCARLET OAK (a member of the red oak group) – Scarlet oak is usually a poorly formed tree **with dead**



The leaves are simple, alternate, somewhat oblong or oval, 3" to 6" long, 2½" to 4" wide and usually 7 lobed. The lobes are bristle-pointed and separated by rounded openings extending at least two-thirds of the distance to the midrib, giving the leaves a very deep "cut" appearance. The leaves turn a brilliant scarlet in the autumn before falling to the ground.

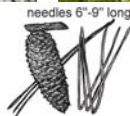
44

Trees of Medium Difficulty – loblolly pine

LOBLOLLY PINE (a southern yellow pine) – In most of Tennessee, loblolly pine will only be found **growing in rows** but in wild stands they may be found growing in random fashion. They are usually tall, with gently sweeping, well pruned trunks. Look for **dark, thick, chunky bark that does not have resin pockets**. Then look up for pine needles. You should see a **tree crown that is made up of thick tufts of pine needles at the ends of scattered branches with daylight in between**. If you can reach the needles, bend them over against themselves. **Loblolly needles are flexible enough to bend double without breaking**.

bark

upward view



Needles are 5" to 9" long, are borne three in a cluster; fruit is in cones or burrs about 3" to 5" long with sharp, upward curving spikes on the end of each scale.

43

C-3b Oval to spear tip shaped leaves 2" to 6" long and 1" to 1½" wide. Edges broken by many fine

curved teeth, thick and shiny above, and paler below.

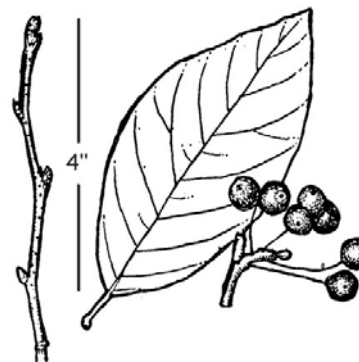
black cherry



C-3c Leaves are 2" to 3" long, and 1" to 2" wide, oval spear tip shaped, smooth edged, shiny dark green in color. Fruit clusters of 2 to 3 bluish-black berries often

present in late summer.

blackgum

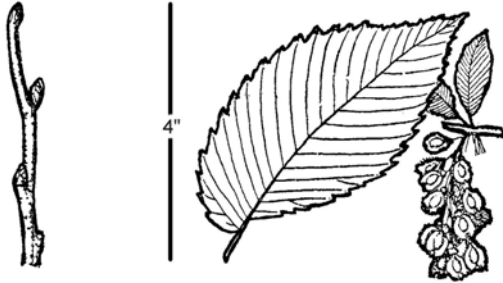


16

C-3d Leaves are 3" to 5" long, oval and double toothed

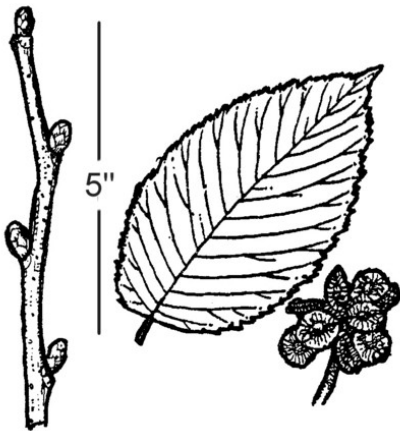
with fine teeth between evenly spaced more course teeth. The base of the leaf is lopsided with one side higher on the leaf than the other.

American elm



C-3e Double toothed leaves 4" to 7" long and 2" to 3" wide are fairly oval with pointed tips and with very rough feeling, dull, dark green upper surface, lopsided base on leaf.

slippery elm



CHESTNUT OAK – Chestnut oak is a member of the white oak group. It grows on dry sites such as upper slopes and ridge tops. It can get very large, including a wide, spreading crown of heavy limbs. **A distinguishing characteristic is the very deeply fissured bark that looks more like a series of V shaped valleys that have been carved up and down the tree trunk than the bark cracked open because of tree growth.** The bark color varies from silver gray to dark gray to brown. **The valleys are V shaped and so deep and wide you can usually lay your fingers completely inside the channels.**

bark variations bud, leaf, acorn bark variations



The leaves of chestnut oak are simple, alternate, oblong, often rounded at the point, irregularly scalloped or wavy on the edge (not sharp-toothed) 5" to 9" long and shiny yellowish green above, lighter and slightly fuzzy beneath.

BOXELDER □ Boxelder is a small, rounded, often forked tree that can be found in urban settings and open damp areas. The wood is very brittle, often leaving the tree with broken tops and a lot of **long, green, slender sprouts growing out in clumps along the trunk and major limbs of the tree.** Unlike sassafras that also has green twigs, boxelder sprouts have no rough secondary bark patches along the stem. The bark texture looks a lot like ash making winter identification only by bark difficult.

trunk with sprouts



tree



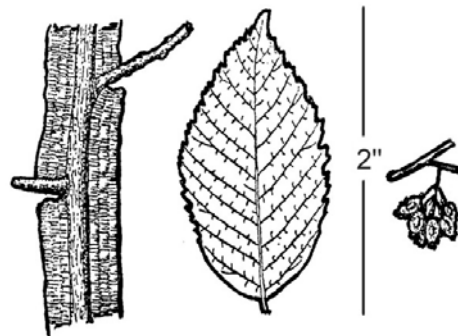
Leaves have leaflets that have several shapes with some jutting out to the side like pointed thumbs. Twigs are long, slender and often green.

41

C-3f Leaves are 1½” to 3” and 1” to 1½” wide, double

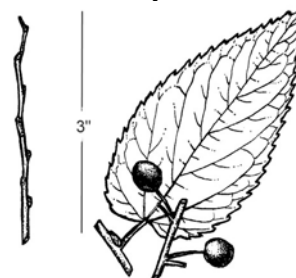
toothed with fine teeth between evenly spaced more course teeth. One side of the leaf is larger than the other as though the yellow leaf stem is slightly off on one side of the base circle. There are usually flat topped corky ridges along the twig between the leaves.

winged elm



C-3g Light green spear tip shaped leaves 2” to 4” long and 1” to 2” wide that have smooth edges around the base and fine teeth along the sides up to the tip. Tree trunk is light gray with corky warts in singles and clusters.

hackberry



18

C-3h Lance shaped leaves 4” to 7” long and 1” to 2”

wide with finely toothed outside margins. Dark green color on top and pale on bottom. Leaf has a very sour taste when rolled up and repeatedly bitten or chewed.

sour-wood



D.

Alternate arrangement, Compound Leaves
hickory, black walnut, locust

D-1. Leaf is 8” to 14” long with from 5 to 9 fine toothed leaflets that are usually yellow green on top and paler on the bottom. Leaflets come off a central leaf stem at intervals along the side and off the end of the stem.

hickory

shagbark, mockernut, pignut, bitternut

shagbark hickory



mockernut hickory



pignut hickory



bitternut hickory

19

Trees of Medium Difficulty – black oak

BLACK OAK – Black oak is a member of the red oak group that has a very tight, rough, dark gray bark with no streaking. The bark is very resistant to being cut **but if a small hole is cut or drilled in a bark crack you will usually find a bright orange to yellow colored, very bitter tasting inner bark.** Black oak is often one of the largest trees in the forest, having a balanced set of strong looking limbs in its top.

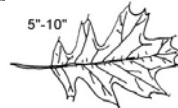
bark



tree trunk



orange inner bark

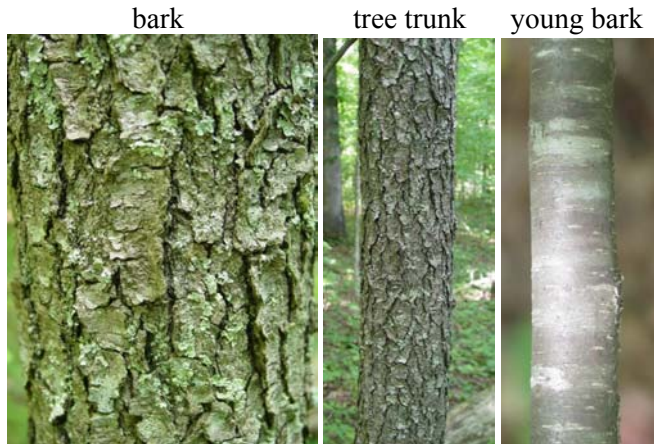


The leaves are alternate, simple, 5” to 10” long and 3” to 8” wide, with shallow or deep lobes, the shape varying greatly. When mature, the leaves are dark green and shiny on the upper surface, pale on the lower, more or less covered with down and with conspicuously rusty brown hairs in the forks of the veins.

40

Trees of Medium Difficulty – black cherry

BLACK CHERRY – Black cherry can be identified by its **dark gray/black bark that looks as flaky as if someone glued large corn flakes up and down its trunk**. Small trunks, limbs and twigs will have a **series of random, fine white lines marked at right angles to the way the stem is growing**. Breaking off a twig or pricking a hole through the bark to the inner wood will produce a **pungent odor**.



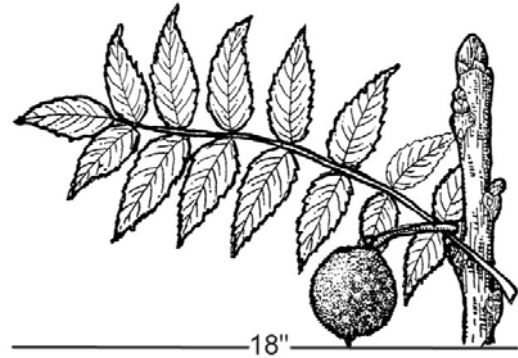
Oval to lance-like shape leaves are 2" to 6" long and 1" to 1½" wide, are thick and shiny above, and paler beneath. Leaf edges are broken by many fine in-curved teeth.

39

D-2. Leaves 1' to 2' in length with 13 to 23 leaflets

2" to 4" long and 1" to 2" wide, sharply toothed and pointed. Terminal leaflet is often missing. Inner bark of trunk is dark chocolate brown

black walnut



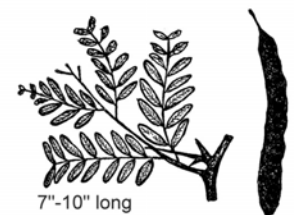
D-3. Leaves are 8" to 14" long with 12 to 20 small oval leaflets ½" to 1" long and ¼" to ½" wide. The base and tip of the leaflets are rounded at the ends.

locust

black locust
(compound leaf)



honey locust
(double compound leaf)



20

Identifying Trees in the Winter

When There are no Leaves on the Tree

Identifying trees any time of the year can be a challenge. It can be especially difficult in the winter when the leaves have dropped off the tree and the remaining buds and twigs are high in the tree and out of reach. Fortunately, trees do not move around so their probable identities can usually be narrowed down by location. The bark and overall growth form are the most readily available, accurate sources of clues to winter identification of trees. Looking on the ground beneath the tree for shed leaves and seeds can also often help with identifying the tree. But, you have to be careful that you do not miss identify the tree by picking up leaves from a neighboring tree by mistake.

Many trees have bark characteristics that, when known, make positive identification possible. Others are so subtle or variable within the species they just have to be learned by looking at them when the leaves are present and remembering them in the winter. This guide offers clues for identifying those trees that can be identified without first having to learn by leaves. They are classified as:

1. Easy to identify trees
2. Trees of medium difficulty
3. Trees that require close examination

Trees in this booklet that are not listed under one of these three categories are considered to be too variable or subtle in their form and shape to be described for winter identification in this booklet. These trees are best learned and memorized during the summer when leaves are present and can be identified using the tree leaf key given in the first part of this booklet.

21

Trees of Medium Difficulty – baldcypress

BALDCYPRESS – Baldcypress can best be identified in the winter by location, tree shape, and the often present **knees (knob like projections growing up out of the ground or water around the base of the tree)**. Naturally planted baldcypress is usually found **growing in or around standing water**. Needles are dropped in winter making the tree look like a dead cedar tree. On young trees, short, thin reddish brown branches are retained from low on the tree to the top, **forming a tight tee-pee shaped cone that almost looks fuzzy**. **Twigs on these branches are lined with both leaf scars and protruding, hard, round leaf buds**. Larger trees form spreading bases, shed their lower branches, form flat tops, and may develop scattered knees throughout the root zone. The bark is thin, reddish brown to tan in color becoming thick and fibrous as the tree ages.



Needles are lime green to yellow-green, ½” to ¾” long, growing feather like in two rows along lateral branches. Needles turn yellow and fall off in the fall.

38

Trees of Medium Difficulty – American elm

EASY TO IDENTIFY TREES

AMERICAN ELM – American elm is perhaps best identified in the winter by looking at the shape of the tree. Three or four major limbs usually fork sharply upward from the trunk, then arch gracefully over and out and end with clusters of **fine branch tips**. **The ends of these branches are noticeably small for the given size of the tree.** The tree usually forms a **rounded to flat-topped vase shape**. The bark is also a reasonably good secondary identifying characteristic. The bark pattern is long, flat topped ridges and valleys. **Cutting into the bark will reveal light rings between layers of brown.**

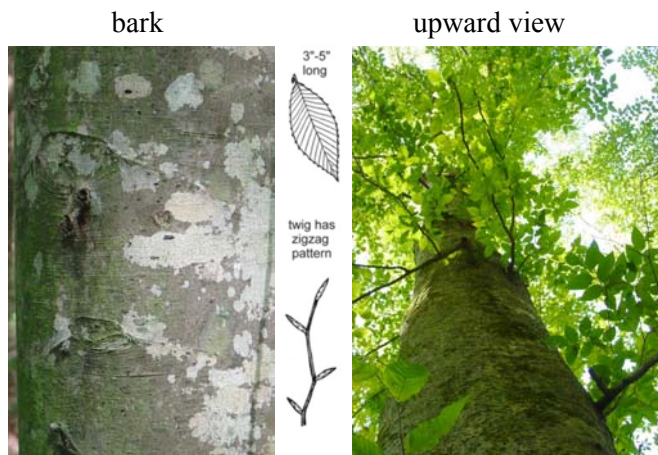
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Winged elm ...35



Leaves are 3” to 5” long, oval and double toothed with fine teeth between evenly spaced more course teeth. The base of the leaf is lopsided with one side higher on the leaf than the other side.

Easy to Identify Trees – American beech

AMERICAN BEECH – American beech retains its **very smooth, mouse gray bark** without peeling, no matter how large it grows. It is very particular about growing in moist, well-drained areas such as hollows and north facing lower slopes. Because of its dense summer foliage, the area under the tree is usually free of any undergrowth except occasional beech sprouts. Often, it will retain its leaves (light tan after frost) most of the winter. **Twigs have a pronounced zigzag pattern with long, slender buds at each turning point and a leaf or leaf scar at the outside turning points of the pattern.**



Leaves are oblong, sharp tipped 3" to 5" long with toothed edges and very prominent, straight veins that stand out along the bottom of the leaf. Twig has pronounced zigzag pattern with long, slender bud and leaf at the outside turning points of the pattern.

TREES OF MEDIUM DIFFICULTY

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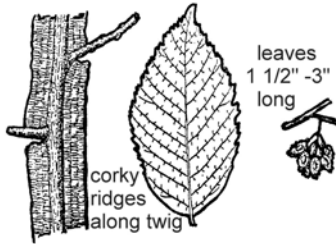
Easy to Identify Trees – winged elm

WINGED ELM – Winged elm is easy to identify because of the corky ridges growing along two sides of the long, wandering small branches and twigs. The tree is usually small, growing on dry soils or rocky areas. The overall shape of the tree is rounded to flat on top unlike sweetgum that may also have corky branches but is tall, triangular in shape and grows in wet areas.

bark



leaves and wings on twigs



leaves
1 1/2" -3"
long

corky
ridges
along twig

Winged elm leaves are 1 1/2" to 3" long and 1" to 1 1/2" wide, double toothed with fine teeth between evenly spaced more coarse teeth. One side of the leaf is slightly larger than the other side as though the yellow leaf stem is slightly off on one side of the base.

Easy to Identify Trees - ash

ASH – There are several varieties of ash that grow in Tennessee on a wide variety of sites. Green ash and white ash are the two most common species in Tennessee. Ash has a light tan to gray, rough bark that sometimes forms a tight, diamond chain shaped pattern. The surface of the bark will usually rub off in a crumbly manner. When the outer bark is sliced away, a very light cream colored inner bark is exposed. The branch tips are large and very blunt looking (not to be confused with box-elder that has long, slender, and often green branches).

bark variations



green ash blunt tip



leaves
9"-12"

white ash

Ashes have 9"-12" long compound leaves that are opposite in arrangement along the twig. The leaves have three to seven 1 1/2" leaflets growing along the sides and end of the leaf stalk. Green ash has a prominent bud nestled in the crotch between the twig and leaf. White ash has a small bud that is buried in the crotch and not readily visible.

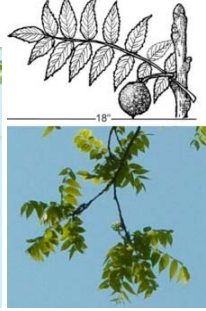
Easy to Identify Trees – black walnut

BLACK WALNUT – Black walnut has a rough dark bark and only a few, widely spaced, strong looking limbs. Using a knife to slice away the soft surface of the bark on the trunk of the tree will expose **smooth, chocolate brown inner bark with no white rings**. The odor of the cut bark is also distinctive to black walnut.

black walnut tree



tree bark



Black walnut leaves are 1' to 2' in length with 13 to 23 leaflets 2" to 4" long and 1" to 2" wide sharply toothed and pointed. Terminal leaflet is often missing.

Easy to Identify Trees – white pine

WHITE PINE – White pine is easy to identify by its 3" to 5" long, deep blue green needles (5 to a bundle). It grows one set of branches each year, resulting in a **whorl of branches clustered around the trunk at the same height on the tree followed by a bare space then another cluster**. This wagon wheel like pattern repeats itself all the way to the top of the tree. Whorls of dead branches or branch stubs usually persist on lower tree trunks. The trunk is dark gray-black.

upward view



White pine has soft, flexible, blue-green needles, 3" to 5" long and growing in bundles of 5. Each needle has white lines along the length of the bottom edge.

Easy to Identify Trees – shagbark hickory

SHAGBARK HICKORY – Shagbark hickory has a mouse gray, mottled, hard, almost shiny **bark that peels up from the bottom in long overlapping strips hanging down in layers that are often over 6” long.** These strips are tough as armor making them difficult to break off even though with some effort they can be peeled from the tree.

bark



leaf



fruit, twig with buds

Shagbark hickory leaves are 8” to 14” long with from 5 to 9 fine toothed leaflets that are usually yellow green on top and paler on the bottom. Leaflets come off a central leaf stem at intervals along the side and off the end of the stem.

Easy to Identify Trees – eastern redcedar

EASTERN REDCEDAR – Eastern redcedar is our only native **evergreen that has scale type leaves.** It is a small tree that typically has very dense yellow-green to blue-green foliage with thin brown bark that will peel or shred off in thin strips. Pricking through the bark to the wood will usually produce a distinctive cedar smell that is consistent for this species.

tree



bark



The leaves of eastern redcedar are very small yellow-green to blue-green scale like leaves growing on all four sides in tight aromatic prickly top.

Easy to Identify Trees – flowering dogwood

FLOWERING DOGWOOD – Flowering dogwood is a **small tree** seldom reaching more than 20' in height and 6" in diameter, with a rather **flat and spreading crown and short, often crooked trunk**. **The bark is tan to dark brown and broken up into small four-sided scaly blocks**. During the winter there are usually **large, flat topped, rounded flower bracts that show an X when looked at from the end**, attached to branch tips.

Flowering dogwood blooms in spring with small flowers surrounded by four large white petal-like bracts that forms what looks like large white flowers. In the fall, the leaves turn burnt red color and show off clusters of red berries.

bark



tree



Flowering dogwood's dark to yellow green leaves are oblong and broadly rounded 3" to 5" long and 2" to 3" wide with smooth but wavy outer edges that are almost rounded at the base and tipped at the end. The veins

make pronounced sweeping upward curves from the central vein to the outside edge of the leaf.

Easy to Identify Trees - sycamore

SYCAMORE – Sycamore can be called the tree of bones because it looks like old bones shedding patches of skin. Both the trunk and the well spaced, large, long limbs **shed random patches of paper thin, light tan bark, exposing large areas of very smooth greenish gray to silver white bark**. The trunk of very large trees may eventually be covered with this light tan outer bark but the limbs continue to shed.

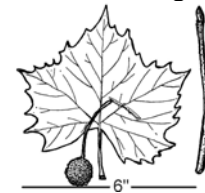
peeling bark



top and limb bark



fruit, leaf, twig



The sycamore leaf is 4" to 8" wide and irregularly fan shaped, usually slightly longer and wider than a man's

hand. Veins for the leaf all originate at the base stem of the leaf and fan out like fingers into the lobes.

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Easy to Identify Trees - sassafras

SASSAFRAS – Sassafras has a thick, rough reddish brown to weathered silver bark that often causes it to be confused with other trees, including black walnut.

Slicing off the surface of the bark will reveal a pale orange inner bark. Smelling the fresh cut slice will usually be rewarded with the distinctive sassafras smell that resembles the smell of root beer. Twigs are bright green and brittle. Limbs are clustered and twisted into an unkempt looking top.

bark



leaves



Sassafras may have a mixture of 3" to 5" long leaves having no lobes, two lobes, or three lobes all growing

together in the crown. Edges of the leaves are smooth giving the lobed leaves the look of mittens.

31

Easy to Identify Trees - hackberry

HACKBERRY – Hackberry is a medium to large sized tree often found growing in fencerows and in almost pure stands on shallow, limestone based soils. Like the beech, it has smooth, mouse gray bark but **it also has warts!** The bark will have **single warty growths and clusters of warty growth protruding from the smooth surface at random places.** These protrusions are usually ¼" to ½" tall, twisted looking and anywhere from ¼" long warty singles to warty rows along the smooth bark. **A second identifying feature is the bird nest like tangles of twisted twigs that often develop at the ends of the branches.**

Bark



limb tangles

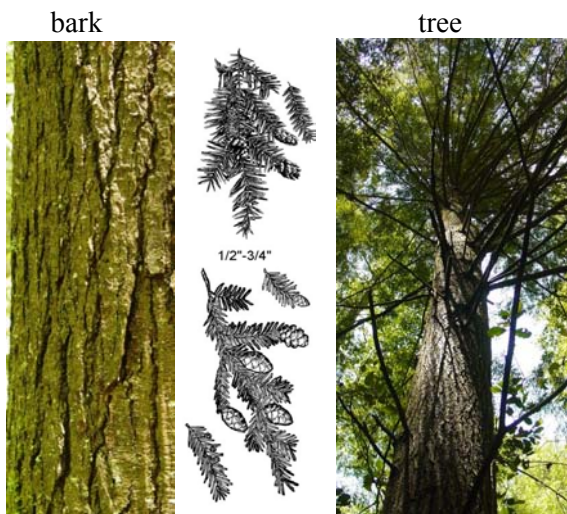


Hackberry has light green spear tip shaped leaves 2" to 4" long and 1" to 2" wide that have smooth edges around the base and fine teeth along the sides up to the tip.

28

Easy to Identify Trees - hemlock

HEMLOCK – Hemlock is found in the eastern part of the State. It is an upland evergreen tree that keeps its leaves year-round. Lower limbs usually droop down toward the ground in flat, layered fashion and flair upward at the tips. **The 3/4" long, flat, blunt tipped needles have two parallel light blue stripes along the bottom side from end to end.** This tree is almost always growing in moist, well-drained areas such as lower drainage and north facing slopes. Two species of hemlock grow in east Tennessee. Eastern hemlock is the most common but Carolina hemlock may also be found.

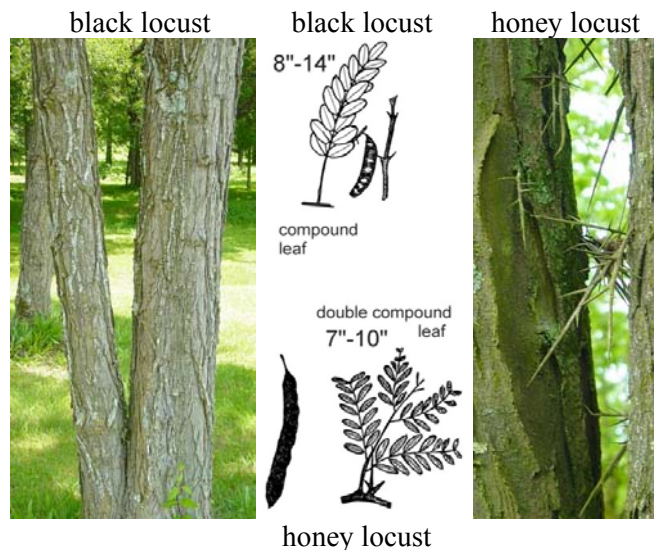


Hemlocks have flat needles 3/4" long with blunt ends. Two light blue lines parallel along the length of the bottom of each leaf. Branches hang in flat, layered fashion. Needles lay flat on eastern hemlock and protrude in all directions on Carolina hemlock.

29

Easy to Identify Trees - locust

LOCUST – Black locust and honey locust are medium sized trees that have light brown rope like bark. **The quick identifying characteristic is the presence of thorns along the twigs and trunk.** Black locust has scattered, small thorns present on the branches and tree trunk while honey locust has a prominent presence of long, sharp thorns growing from both the trunk and larger limbs. The thorns on black locust are single spikes but the thorns on honey locust often have secondary thorns growing at an angle from the base.



Locust leaves are compound (black) or doubly compound (honey) 8" to 14" long with 12 to 20 small oval leaflets $\frac{1}{2}$ " to 1" long and $\frac{1}{4}$ " to $\frac{1}{2}$ " wide. The base and tip of the leaflets are rounded at the ends.