Identification of Trees in the Winter

Jim Perry
What is a Tree?

Tree: Woody plants, excluding vines ≥ 20 feet in height & ≥3 inches DBH, regardless of height
What is a Tree?

Two major classifications:

Angiosperms

Deciduous

Evergreen
What is a Tree?

Gymnosperms

Evergreen

Deciduous
**What is a Tree?**

Tree: Woody plants, excluding vines ≥ 20 feet in height & ≥3 inches DBH, regardless of height

**Sapling Woody plants (excluding vines):** ≥ 20-ft in height & < 3-in DBH
What is a Tree?

Tree: Woody plants, excluding vines ≥ 20 feet in height & ≥3 inches DBH, regardless of height

Sapling Woody plants (excluding vines): ≥ 20-ft in height & < 3-in DBH

Herb: All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, < 3 ft (1 m) in height.
What is a Tree?

Tree: Woody plants, excluding vines ≥ 20 feet in height & ≥ 3 inches DBH, regardless of height

Sapling Woody plants (excluding vines): ≥ 20-ft in height & < 3-in DBH

Herb All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, < 3 ft (1 m) in height.

Shrub Woody plants, excluding vines, from 3 to 20 ft (1 to 6 m) in height.

Woody Vine Consists of all woody vines ≥ 3.28 ft in height.
How do Trees Grow?
How do Trees Grow?
How do Trees Grow?
How do Trees Grow?

Apical Meristem

Auxiliary Meristem

Apical Meristem
How do Trees Grow?

Where will nail be after 10 years if the tree grows at a rate of 1ft per year?

Still at 5 ft!
Where do Branches Come From?
How do Trees Grow?
What is Coppicing?

Coppicing is a traditional method of woodland management which exploits the capacity of many species of trees to put out new shoots from their stump or roots if cut down. In a coppiced wood, which is called a copse, young tree stems are repeatedly cut down to near ground level, known as a stool.
Loss of Terminal Bud

Can be caused by browsers (deer, rabbits), damage from blow down of neighbor, or human induced (road work, power line clearing, etc.).
Loss of Terminal Bud
Some tree species (such as sourwood, blueberries, and persimmon trees) have naturally aborted terminal buds.

WHY?
Winter Identification of Tree

Decision tree
   (plant key)

Deciduous or Evergreen?
Deciduous Trees
Beech  Ironwood  Crape Myrtle
Ironwood
American sycamore
American sycamore
Black Cherry

River Birch
Red Maple
So, instead of barking up the wrong tree, we turn to...
Twig Morphology

Basic Twig Morphology

Helpful Facts: only 4 families of trees have opposite branches/leaf scars (ash, buckeye, dogwoods, maple)!
Basic Twig Morphology

Helpful Facts: only the oaks have five terminal buds!
Imbricate v. valvate v. 1-scaled v. naked.
Leaf Scars

Types of Leaf Scars:
- Round
- Crescent-shaped
- Heart-shaped
- Inversely Triangular
- U-shaped
- Semi-round
- 3-lobed
- V-shaped
Helpful Facts: only magnolia family (and American sycamore) have stipule scars that encircle twig!
HOW A TREE GROWS
TYPES OF PITH

Chambered

Continuous

Round

Angled

Star-shaped
Descriptive Terms for Twigs I

Terminal bud
- Imbricate scales
- Lenticels
- Lateral buds at nodes
- Opposite leaf scars
- Collateral bud

Valvate scales

No terminal bud (False terminal bud)
- Imbricate scales
- Branch scar
- Alternate leaf scars: more than 2-ranked

Alternate leaf scars: 2-ranked

Present year's growth
Terminal bud scale scars
Last year's growth

Red Maple X 2

Yellow-poplar X 2
American Elm X 2

Note for other illustrations:
Flower buds Figs. 32, 75
Superposed buds Figs. 43, 47
Naked buds Figs. 41, 37

Plate 1
Evergreen Trees

Leaves v. Needles

![Magnolia grandiflora leaves and needles](image-url)
Trees We Will Work With

Pine Family (loblolly, virginia, white, slash, longleaf)

Cedar Family (eastern red)

Cypress Family (bald cypress)
Trees We Will Work With

Beech Family:
  Oaks (white, swamp chestnut, post, southern red, scarlet, northern red, pin, water, laurel)

Walnut Family:
  Hickory (mocker and pig nut)
  Walnut (black and white walnut)

Magnolia Family:
  Tulip tree
  Magnolias (swamp and flowering magnolia)

Birch family:
  Birch (river)
  Muscle wood (aka iron wood)
Trees We Will Work With

Maple Family
  Maple (red, silver)

Green Ash

Sourwood

Sweetgum
Trees We Will Work With

Pine Family
Cedar Family
Cypress Family

Beech Family (oaks and beech trees)
Walnut Family (hickory and walnut)
Magnolia Family (tulip tree, swamp and flowering magnolia)
Birch family (birch, muscle wood)
Maple Family

Sourwood
Sweetgum
Using Your Book to Identify Trees

- Works in both summer and winter.
- Twig terminology on page 17.
- Winter key begins on page 34.
- Winter key includes both deciduous and evergreen.
- Initially takes you to GENUS, not necessarily to species, but will direct you to species key.
Plant #1

Turn to page 34:

1. Leaves evergreen. (2)
1a. Leaves deciduous. (30)

30. Leaves scares and buds alternate. (31)
30a. Leaves scares and buds opposite or whorled. (111)

(Note again: only four tree species have opposite scares and buds - ash, buckeye, dogwood, maples.)
31. Twigs with conspicuous silvery scales. (Russian olive)
31a. Twigs lacking silvery scales. (32)

32. Trunk, branches or twigs armed with thorns, prickles, or spines. (33)
32a. Trunk, branches and twigs unarmed. (42)
42. Twigs with a characteristic odor. (43)
42a. Twigs otherwise. (53)

43. Twigs ringed at the nodes by stipulescres. (44)
43a. Twigs otherwise. (45)
44. Terminal bud flattened, with a solitary scale. (Tulip Tree)

44a. Terminal bud not flattened, with a solitary scale. (Magnolias)
Useful Web Sites:

Digital Atlas of Virginia Flora
(http://www.vaplantatlas.org/)

Pinus strobus L.
Liriodendron tulipifera L.
yellow-poplar  *Magnoliaceae* *Liriodendron tulipifera*  

**Leaf:** Alternate, simple, palmately veined, orbicular, 4-lobed with an entire margin, 4 to 8 inches long, notched to flat top. Somewhat shaped like a tulip, light green to green.

**Flower:** Perfect, showy, resembling a large tulip, but high in the tree, 2 1/2 inches long, with yellow-green petals and an orange corolla, appearing in late spring to early summer.

**Fruit:** An oblong (cone-like) aggregate of samaras (2 inches long), deciduous at maturity; each samara is 1-winged, 1 1/2 inches long, and curved upwards at seed cavity (resembling the front keel of a boat); maturing August to October and disseminating through late fall and winter; base whorls of samaras persist on fruit into following spring and resemble wooden flowers high in the tree.

**Twig:** Red-brown in color, often with a shiny appearance or a waxy bloom. Stipules are large and encircle the twig; buds are elongated and valvate, resembling a "duck bill". Twigs have a sweet, spicy odor when broken.

**Bark:** Light gray-green and smooth when young, later developing flat-topped ridges and conspicuous white colored furrows in diamond shaped patterns. On older trees sapsucker holes are common.

**Form:** In a forest, a large tree with a long, straight limb-free bole very often reaching over 100 feet tall. Open-grown trees have a pyramidal crown when young, becoming oval in shape with time.

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**Additional Range Information:** *Liriodendron tulipifera* is native to North America. Range may be expanded by planting. See states reporting yellow-poplar.

**More Information:** [Fall Color](#) - [Wood](#) - [Landowner Factsheet](#)

**External Links:** [USDAFS Silvics of North America](#) - [USDAFS Additional Silvics](#) - [USDA Plants Database](#) - [Horticulture Information](#) - [USDAFS Forest Products Lab](#)

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WAKE UP! It’s Time for Questions?