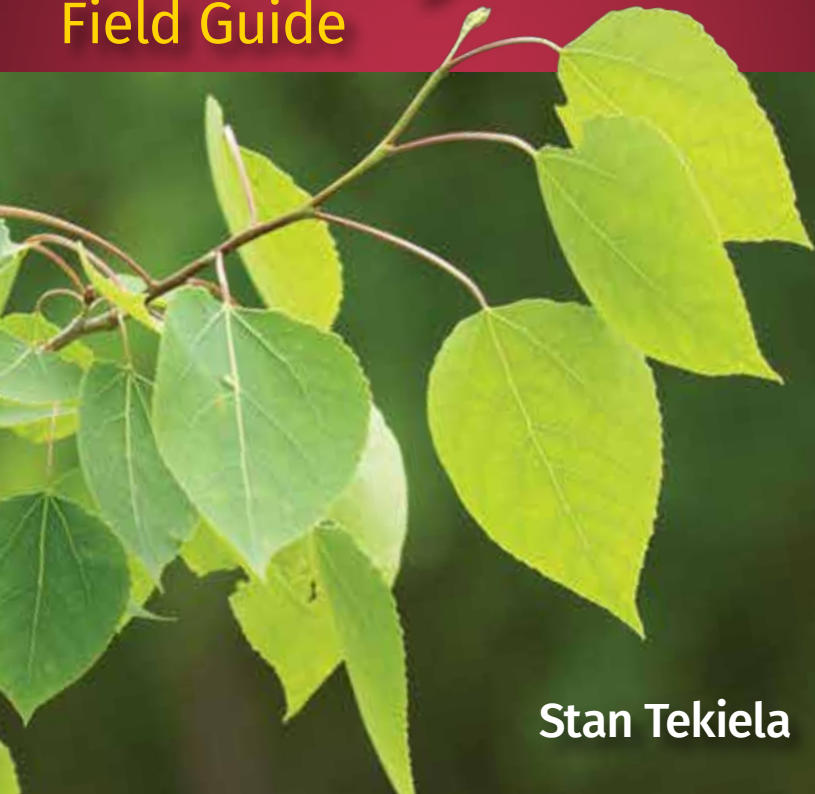


2ND EDITION

# Trees *of* Pennsylvania

Field Guide



Stan Tekiela

Trees that have single needles pg. 35

---



Trees that have clustered needles pg. 51

---

Trees that have scaly needles pg. 69

---



Trees that have simple, oppositely attached leaves pg. 73

---



Trees that have simple, alternately attached leaves pg. 85

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Trees that have compound, oppositely attached leaves pg. 217

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Trees that have compound, alternately attached leaves pg. 227

---



Trees that have twice compound, alternately attached leaves pg. 259

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Trees that have palmate compound, oppositely attached leaves pg. 263

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2ND EDITION

# Trees *of* Pennsylvania

Field Guide

Stan Tekiela

Adventure Publications  
Cambridge, Minnesota



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Tree illustrations by Julie Martinez

**Cover photo: Quaking Aspen by Stan Tekiela**

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## PENNSYLVANIA AND TREES

Pennsylvania is a great place for anyone interested in trees. With *Trees of Pennsylvania Field Guide*, you'll be able to quickly identify 117 of the most common trees in Pennsylvania—most of which are native to the state. This guide also includes a number of common non-native trees that have been naturalized in Pennsylvania. This book makes no attempt to identify cultivated or nursery trees.

Because this book is a unique all-photographic field guide just for Pennsylvania, you won't have to page through photographs of trees that don't grow in the state, or attempt to identify live trees by studying black-and-white line drawings.

## WHAT IS A TREE?

For the purposes of this book, a tree is defined as a large woody perennial plant, usually with a single erect trunk, standing at least 15 feet (4.5 m) tall, with a well-defined crown. *Trees of Pennsylvania Field Guide* helps you observe some basic characteristics of trees so you can identify different species confidently.

## HOW THIS BOOK IS ORGANIZED

To identify a tree, you'll want to start by looking at the thumb tabs in the upper right-hand corner of the text pages. These tabs define the sections of the book. They combine several identifying features of a tree (main category, needle or leaf type and attachment) into one icon.

It's possible to identify trees using this field guide without learning about categories, leaf types and attachments. Simply flip through the pages to match your sample to the features depicted on the thumb tabs. Once you find the correct section, use the photos to find your tree. Or, you may want to learn more about the features of trees in a methodical way, using the following steps to narrow your choices to just a few photos.

1. First, determine the appropriate section and find the right icon by asking these questions: Is the tree coniferous or deciduous? If it is a conifer, are the needles single, clustered or scaly? If it is deciduous, is the leaf type simple, lobed or compound, and do leaves attach to twigs in an opposite or alternate pattern?
2. Next, simply browse through the photos in that section to find your tree. Or, to further narrow your choices, use the icon in the lower right-hand corner of the text pages. These icons are grouped by the general shape of the needle or leaf, and they increase in size as the average size of the needle or leaf increases.
3. Finally, by examining the full-page photos of needles or leaves, studying the inset photos of bark, flowers, fruit or other special features and considering information on text pages, you should be able to confidently identify the tree.

While these steps briefly summarize how you can use this book, it is quite helpful to learn more about how the sections are grouped by reading the Identification Step-by-Step section.

## **IDENTIFICATION STEP-BY-STEP**

### **Conifer or Deciduous**

Trees in this field guide are first grouped into two main categories that consist of 19 conifers and 98 deciduous trees.

Trees with evergreen needles that remain on branches year-round and have seeds in cones are conifers. Some examples of these are pines and spruces. The exceptions in this main category are the Bald Cypress and the Tamarack, conifers that behave like deciduous trees, shedding their needles in autumn. Trees with broad flat leaves that fall off their branches each autumn are deciduous. Some examples of these are oaks and maples.

You will see by looking at the thumb tabs that trees with needles (conifers) are shown in the first sections of the book, followed by trees with leaves (deciduous).

## Needle or Leaf Type

### CONIFER GROUP:

#### Single, Clustered or Scaly Needles



**SINGLE**



**CLUSTERED**

(Range of  
2-30 needles)



**SCALY**

If the tree is a conifer, the next step is to distinguish among single, clustered and scaly needles. Begin by checking the number of needles that arise from one point. If you see only one needle arising from one point, look in the single needle section. Conifers with single needles are shown first. If there are at least two needles arising from one point, turn to the clustered needles section. This second section is organized by the number of needles in a cluster. If you are trying to identify needles that overlap each other and have a scale-like appearance, unlike the other needles, you will find this type in the scaly needles section.

### DECIDUOUS GROUP:

#### Simple, Lobed or Compound



**SIMPLE**



**LOBED**



**COMPOUND**



**TWICE  
COMPOUND**



**PALMATE  
COMPOUND**

If the tree is deciduous, the next step is to determine the leaf type. Many of the simple leaves have a basic shape such as oval, round or triangular. Other simple leaves are lobed, identified by noticeable indentations along their edges. Simple leaves without lobes are grouped first, followed by the lobed leaf groups.

If a leaf is composed of smaller leaflets growing along a single stalk, you'll find this type in the compound leaf sections. When a leaf has small leaflets growing along the edge of a thinner secondary stalk, which is in turn attached to a thicker main stalk, check the twice compound section. If the leaf has leaflets emerging from a common central point at the end of a leafstalk, look in the palmate compound section.

## Leaf Attachment



**SIMPLE  
OPPOSITE**



**LOBED  
OPPOSITE**



**COMPOUND  
OPPOSITE**



**PALMATE  
COMPOUND  
OPPOSITE**



**SIMPLE  
ALTERNATE**



**LOBED  
ALTERNATE**



**COMPOUND  
ALTERNATE**



**TWICE  
COMPOUND  
ALTERNATE**

For deciduous trees, once you have determined the appropriate leaf type, give special attention to the pattern in which the leaves are attached to the twig. Trees with leaves that attach directly opposite of each other on a twig are grouped first in each section, followed by trees with leaves that attach alternately. The thumb tabs are labeled “opposite” or “alternate” to reflect the attachment group. All the above features (main category, needle or leaf type and attachment) are depicted in one icon for easy use.

## Needle or Leaf Size

Once you have found the correct section by using the thumb tabs, note that the section is further loosely organized by needle or leaf size from small to large. Size is depicted in the needle or leaf icon located in the lower right-hand corner of text pages. This icon also reflects the shape of the needle or leaf. For example, the icon for the Amur Maple, which has a leaf size of 2–4 inches (5–10 cm), is smaller than the icon for the Norway Maple with a leaf size of 5–7 inches (12.5–18 cm). Measurement of any deciduous leaf extends from the base of the leaf (excluding the leafstalk) to the tip.

## Using Photos and Icons to Confirm the Identity

After using the thumb tabs to narrow your choices, the last step is to confirm the tree's identity. First, compare the full-page photo of the leaves and twigs to be sure they look similar. Next, study the color and texture of the bark, and compare it to the inset photo. Then consider the information given about the habitat and range.

Sometimes, however, it is a special characteristic, such as flowers, fruit or thorns (described and/or pictured), that is an even better indicator of the identity. In general, if it's spring, check for flowers. During summer, look for fruit. In autumn, note the fall color.

Another icon is also included for each species to show the overall shape of the average mature tree and how its height compares with a two-story house. For trees with an average height of more than 50 feet (15 m), this icon is shown on a slightly smaller scale.

## STAN'S NOTES

Stan's Notes is fun and fact-filled with many gee-whiz tidbits of interesting information, such as historical uses, other common names and much more. Most information given in this descriptive section cannot be found in other tree field guides.

## CAUTION

In Stan's Notes, it's occasionally mentioned that parts of some trees were used for medicine or food. While some find this interesting, DO NOT use this field guide to identify edible or medicinal trees. Certain trees in the state have toxic properties or poisonous look-alikes that can cause severe problems. Do not take the chance of making a mistake. Please enjoy the trees of Pennsylvania with your eyes, nose or with your camera. In addition, please don't pull off leaves, cut branches or attempt to transplant any trees. Nearly all of the trees you will see are available at your local garden centers. These trees have been cultivated and have not been uprooted from the wild. Trees are an important part of our natural environment, and leaving a healthy tree unharmed will do a great deal to help keep Pennsylvania the wondrous place it is.

Enjoy the Trees!

A handwritten signature in black ink, appearing to read "Stan", written in a cursive style.



## LEAF BASICS

It's easier to identify trees and communicate about them when you know the names of the different parts of a leaf. For instance, it is more effective to use the word "sinus" to indicate an indentation on an edge of a leaf than to try to describe it.

The following illustrations show coniferous needles in cross section and the basic parts of deciduous leaves. The simple/lobed leaf and compound leaf illustrations are composites of leaves and should not be confused with any actual leaf of a real tree.

## Needle Cross Sections



square



flat

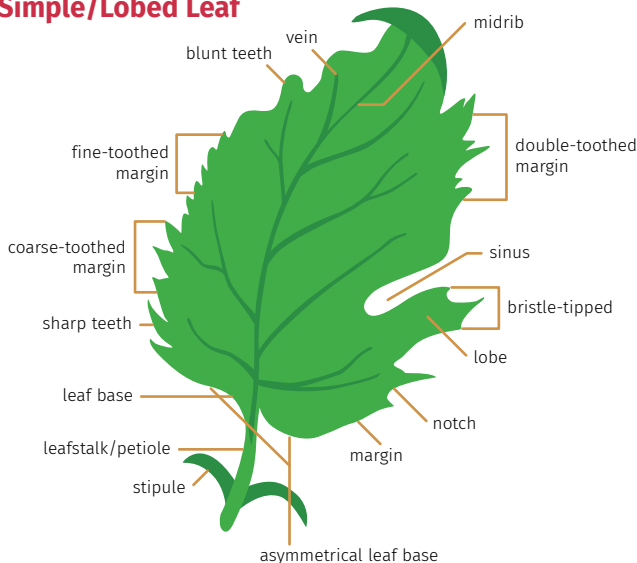


triangular

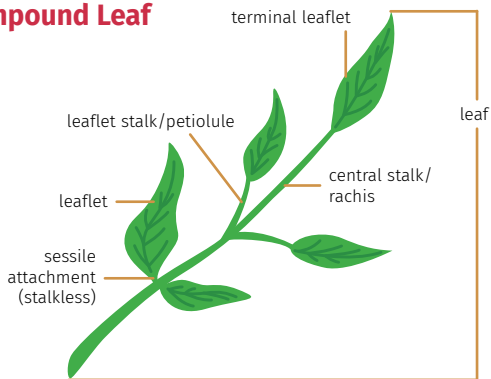


round

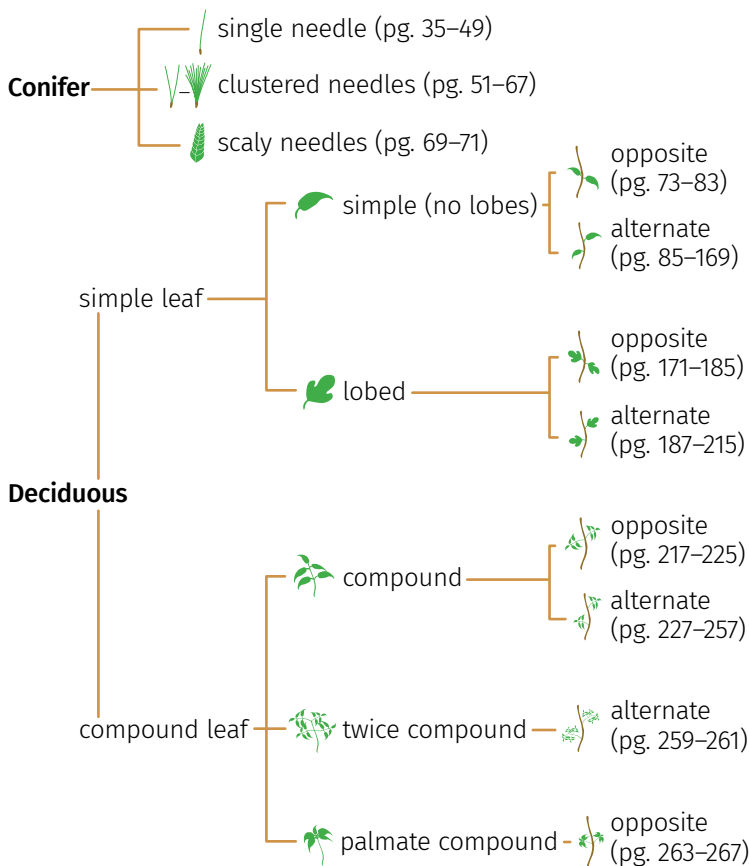
## Simple/Lobed Leaf



## Compound Leaf



## FINDING YOUR TREE IN A SECTION



The smaller needles and leaves tend to be toward the front of each section, while larger sizes can be found toward the back. Check the icon in the lower right corner of text pages to compare relative size.

## SILHOUETTE QUICK COMPARES

To quickly narrow down which mature tree you've found, compare its rough outline with the samples found here. For a sense of scale, we've included the tree's height range compared with a drawing of a typical U.S. house. Obviously, tree heights and general shapes can vary significantly across individuals, but this should help you rule out some possible options, hopefully pointing you in the right direction. Once you've found a possible match, turn to the specified page and confirm or rule it out by examining the photos of bark and leaves and the accompanying text.



## SILHOUETTE QUICK COMPARES, *continued*





**Eastern Whitecedar**  
30–50'  
pg. 71



**Siberian Elm**  
30–50'  
pg. 85



**Post Oak**  
30–60'  
pg. 201



**Sassafras**  
30–60'  
pg. 189



**Virginia Pine**  
30–60'  
pg. 53



**Scotch Pine**  
30–80'  
pg. 55



**Black Ash**  
40–50'  
pg. 221



**Austrian Pine**  
40–60'  
pg. 57



**Black Oak**  
40–60'  
pg. 211



**Black Willow**  
40–60'  
pg. 115



**Butternut**  
40–60'  
pg. 257



**Colorado Spruce**  
40–60'  
pg. 43



**Cucumbertree**  
40–60'  
pg. 165



**Eastern Hemlock**  
40–60'  
pg. 47



**Ginkgo**  
40–60'  
pg. 131



**Hackberry**  
40–60'  
pg. 135



**Honey Locust**  
40–60'  
pg. 259



**Horse-chestnut**  
40–60'  
pg. 267



**Kentucky Coffeetree**  
40–60'  
pg. 261



**Norway Maple**  
40–60'  
pg. 183



**Paper Birch**  
40–60'  
pg. 103



**Red Maple**  
40–60'  
pg. 175



**Shagbark Hickory**  
40–60'  
pg. 241



**Swamp White Oak**  
40–60'  
pg. 207

## SILHOUETTE QUICK COMPARES, *continued*



**White Ash**  
40–60'  
pg. 223



**White Poplar**  
40–60'  
pg. 187



**White Spruce**  
40–60'  
pg. 37



**Black Maple**  
40–70'  
pg. 179



**Quaking Aspen**  
40–70'  
pg. 91



**Tamarack**  
40–70'  
pg. 67



**Mockernut  
Hickory**  
40–80'  
pg. 243



**Red Pine**  
40–80'  
pg. 59



**Weeping  
Willow**  
40–80'  
pg. 111



**Green Ash**  
50–60'  
pg. 225



**Shingle Oak**  
50–60'  
pg. 125



**American  
Basswood**  
50–70'  
pg. 161



**Balsam Poplar**  
50–70'  
pg. 97



**Bigtooth Aspen**  
50–70'  
pg. 93



**Black Tupelo**  
50–70'  
pg. 149



**Chinquapin  
Oak**  
50–70'  
pg. 127



**Norway Spruce**  
50–70'  
pg. 45



**Pin Oak**  
50–70'  
pg. 199



**Pitch Pine**  
50–70'  
pg. 63



**Red Oak**  
50–70'  
pg. 213



**Red Spruce**  
50–70'  
pg. 41



**Slippery Elm**  
50–70'  
pg. 89



**Sugar Maple**  
50–70'  
pg. 177



**Tree-of-heaven**  
50–70'  
pg. 229



**White Oak**  
50-70'  
pg. 209



**Yellow Birch**  
50-70'  
pg. 105



**Yellow Buckeye**  
50-70'  
pg. 263



**Balsam Fir**  
50-75'  
pg. 49



**Black Cherry**  
50-75'  
pg. 123



**Black Walnut**  
50-75'  
pg. 255



**Northern Catalpa**  
50-75'  
pg. 83



**Bur Oak**  
50-80'  
pg. 215



**Bitternut Hickory**  
50-100'  
pg. 237



**Scarlet Oak**  
60-70'  
pg. 203



**American Beech**  
60-80'  
pg. 145



**English Oak**  
60-80'  
pg. 195



**Lombardy Poplar**  
60-80'  
pg. 95



**Red Hickory**  
60-80'  
pg. 239



**American Chestnut**  
60-90'  
pg. 169



**Chestnut Oak**  
60-90'  
pg. 129



**Shumard Oak**  
60-90'  
pg. 205



**Sycamore**  
60-90'  
pg. 163



**Shellbark Hickory**  
70-90'  
pg. 245



**American Elm**  
70-100'  
pg. 87



**Eastern Cottonwood**  
70-100'  
pg. 99



**Eastern White Pine**  
70-100'  
pg. 65



**Shortleaf Pine**  
70-100'  
pg. 61



**Silver Maple**  
75-100'  
pg. 181



## SILHOUETTE QUICK COMPARES, *continued*

---



**Bald Cypress**  
80–100'  
pg. 35



**Sweetgum**  
80–100'  
pg. 191

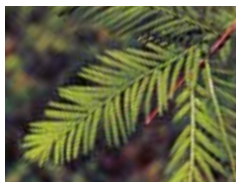


**Tulip-tree**  
80–100'  
pg. 193

## NEEDLE AND LEAF QUICK COMPARES

To help you differentiate among similar-looking tree species, compare your finds with the following leaf images. For each species, we've also included information about the leaf shape and attachment, which can help quickly point you in the right direction.

**Note:** Leaf images are not to scale.



**Bald Cypress**  
single needle  
pg. 35



**White Spruce**  
single needle  
pg. 37



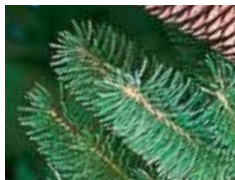
**Black Spruce**  
single needle  
pg. 39



**Red Spruce**  
single needle  
pg. 41



**Colorado Spruce**  
single needle  
pg. 43



**Norway Spruce**  
single needle  
pg. 45




**Eastern Hemlock**  
single needle  
pg. 47



**Balsam Fir**  
single needle  
pg. 49



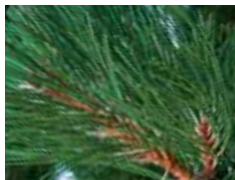
**Table Mountain Pine**  
single needle  
pg. 51




**Virginia Pine**  
clustered needles  
pg. 53




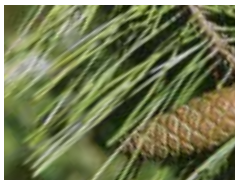
**Scotch Pine**  
clustered needles  
pg. 55




**Austrian Pine**  
clustered needles  
pg. 57




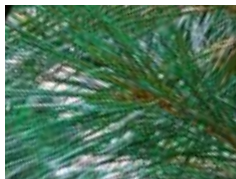
**Red Pine**  
clustered needles  
pg. 59




**Shortleaf Pine**  
clustered needles  
pg. 61




**Pitch Pine**  
clustered needles  
pg. 63




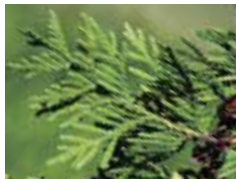
**Eastern White Pine**  
clustered needles  
pg. 65




**Tamarack**  
clustered needles  
pg. 67




**Eastern Redcedar**  
scaly needles  
pg. 69



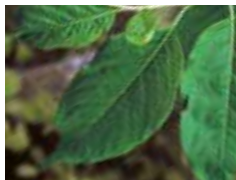
**Eastern Whitecedar**  
scaly needles  
pg. 71



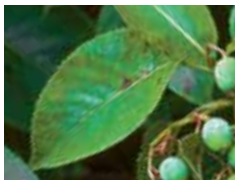
**European Buckthorn**  
simple opposite  
pg. 73



**Eastern Flowering Dogwood**  
simple opposite  
pg. 75



**Eastern Wahoo**  
simple opposite  
pg. 77



**Nannyberry**  
simple opposite  
pg. 79



**Buttonbush**  
simple opposite  
pg. 81



**Northern Catalpa**  
simple opposite  
pg. 83



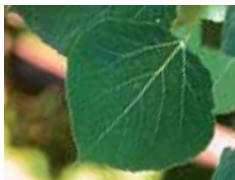
**Siberian Elm**  
simple alternate  
pg. 85



**American Elm**  
simple alternate  
pg. 87



**Slippery Elm**  
simple alternate  
pg. 89



**Quaking Aspen**  
simple alternate  
pg. 91



**Bigtooth Aspen**  
simple alternate  
pg. 93



**Lombardy Poplar**  
simple alternate  
pg. 95



**Balsam Poplar**  
simple alternate  
pg. 97



**Eastern Cottonwood**  
simple alternate  
pg. 99



**Gray Birch**  
simple alternate  
pg. 101



**Paper Birch**  
simple alternate  
pg. 103



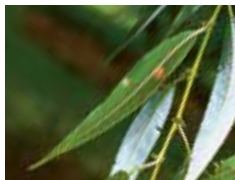
**Yellow Birch**  
simple alternate  
pg. 105



**Crab Apple**  
simple alternate  
pg. 107



**Wild Apple**  
simple alternate  
pg. 109



**Weeping Willow**  
simple alternate  
pg. 111



**Pussy Willow**  
simple alternate  
pg. 113



**Black Willow**  
simple alternate  
pg. 115



**American Plum**  
simple alternate  
pg. 117



**Pin Cherry**  
simple alternate  
pg. 119



**Choke Cherry**  
simple alternate  
pg. 121



**Black Cherry**  
simple alternate  
pg. 123



**Shingle Oak**  
simple alternate  
pg. 125



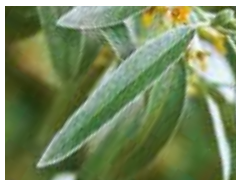
**Chinquapin Oak**  
simple alternate  
pg. 127



**Chestnut Oak**  
simple alternate  
pg. 129



**Ginkgo**  
simple alternate  
pg. 131



**Russian-olive**  
simple alternate  
pg. 133



**Hackberry**  
simple alternate  
pg. 135



**Hawthorn**  
simple alternate  
pg. 137



**Juneberry**  
simple alternate  
pg. 139



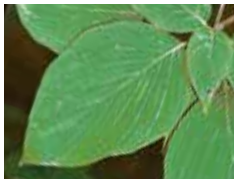
**Ironwood**  
simple alternate  
pg. 141



**Blue Beech**  
simple alternate  
pg. 143



**American Beech**  
simple alternate  
pg. 145



**Alternate-leaf Dogwood**  
simple alternate  
pg. 147





**Black Tupelo**  
simple alternate  
pg. 149



**Red Mulberry**  
simple alternate  
pg. 151



**Osage-orange**  
simple alternate  
pg. 153



**Eastern Redbud**  
simple alternate  
pg. 155



**Common Persimmon**  
simple alternate  
pg. 157



**Witch-hazel**  
simple alternate  
pg. 159



**American Basswood**  
simple alternate  
pg. 161



**Sycamore**  
simple alternate  
pg. 163



**Cucumbertree**  
simple alternate  
pg. 165



**Pawpaw**  
simple alternate  
pg. 167



**American Chestnut**  
simple alternate  
pg. 169



**Amur Maple**  
lobed opposite  
pg. 171



**Mountain Maple**  
lobed opposite  
pg. 173



**Red Maple**  
lobed opposite  
pg. 175



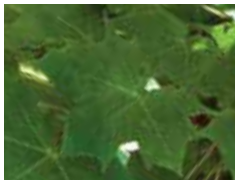
**Sugar Maple**  
lobed opposite  
pg. 177



**Black Maple**  
lobed opposite  
pg. 179



**Silver Maple**  
lobed opposite  
pg. 181



**Norway Maple**  
lobed opposite  
pg. 183



**Striped Maple**  
lobed opposite  
pg. 185



**White Poplar**  
lobed alternate  
pg. 187



**Sassafras**  
lobed alternate  
pg. 189



**Sweetgum**  
lobed alternate  
pg. 191



**Tulip-tree**  
lobed alternate  
pg. 193



**English Oak**  
lobed alternate  
pg. 195





**Blackjack Oak**  
lobed alternate  
pg. 197



**Pin Oak**  
lobed alternate  
pg. 199



**Post Oak**  
lobed alternate  
pg. 201



**Scarlet Oak**  
lobed alternate  
pg. 203



**Shumard Oak**  
lobed alternate  
pg. 205



**Swamp White Oak**  
lobed alternate  
pg. 207



**White Oak**  
lobed alternate  
pg. 209



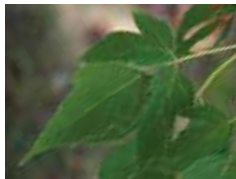
**Black Oak**  
lobed alternate  
pg. 211



**Red Oak**  
lobed alternate  
pg. 213



**Bur Oak**  
lobed alternate  
pg. 215



**Boxelder**  
compound opposite  
pg. 217



**American Bladdernut**  
compound opposite  
pg. 219



**Black Ash**

compound opposite  
pg. 221



**White Ash**

compound opposite  
pg. 223



**Green Ash**

compound opposite  
pg. 225



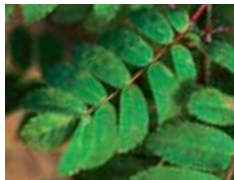
**Common Hoptree**

compound alternate  
pg. 227



**Tree-of-heaven**

compound alternate  
pg. 229



**European Mountain-ash**

compound alternate  
pg. 231



**American Mountain-ash**

compound alternate  
pg. 233



**Common Prickly-ash**

compound alternate  
pg. 235



**Bitternut Hickory**

compound alternate  
pg. 237



**Red Hickory**

compound alternate  
pg. 239



**Shagbark Hickory**

compound alternate  
pg. 241



**Mockernut Hickory**

compound alternate  
pg. 243



**Shellbark Hickory**  
compound alternate  
pg. 245



**Poison Sumac**  
compound alternate  
pg. 247



**Smooth Sumac**  
compound alternate  
pg. 249



**Staghorn Sumac**  
compound alternate  
pg. 251



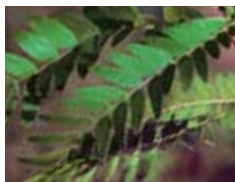
**Black Locust**  
compound alternate  
pg. 253



**Black Walnut**  
compound alternate  
pg. 255



**Butternut**  
compound alternate  
pg. 257



**Honey Locust**  
twice compound  
alternate  
pg. 259



**Kentucky Coffeetree**  
twice compound  
alternate  
pg. 261



**Yellow Buckeye**  
palmate compound  
opposite  
pg. 263



**Ohio Buckeye**  
palmate compound  
opposite  
pg. 265



**Horse-chestnut**  
palmate compound  
opposite  
pg. 267





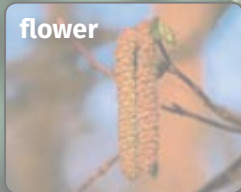
sample  
page

mature  
fruit

bark



flower



immature fruit





Average mature tree compared with a two-story house. Icon is shown on a smaller scale when average tree height is over 50 feet.

## Common Name

*Scientific name*



**Family:** common family name (scientific family name)

**Height:** average range in feet and meters of the mature tree from ground to top of crown

**Tree:** overall description; may include a shape, type of trunk, branches or crown

**Leaf/Needle:** type of leaf or needle, shape, size, and attachment; may include lobes, leaflets, margin, veins, color or leafstalk

**Bark:** color and texture of the trunk; may include inner bark or thorns

**Flower:** catkin, flower; may include shape, size or color

**Fruit/Cone:** seed, nut, berry; may include shape, size, or color

**Fall Color:** color(s) that deciduous leaves turn to in autumn

**Origin/Age:** native or non-native to the state; average life span

**Habitat:** type of soil, places found, sun or shade tolerance

**Range:** throughout or part of Pennsylvania where the tree is found; may include places where planted

**Stan's Notes:** Helpful identification information, history, origin and other interesting gee-whiz nature facts.

Shape of an individual needle, needle cluster, or leaf. Use this icon to compare relative size among similarly shaped leaves.



**bark**



**cone**



**knees**





# Bald Cypress

*Taxodium distichum*

SINGLE  
NEEDLE



**Family:** Cypress (Cupressaceae)

**Height:** 80–100' (24.5–30.5 m)

**Tree:** large conical tree, enlarged straight trunk with a flared base (buttress), spreading into ridges, widely spreading branches, crown often pointed

**Needle:** single needle,  $\frac{1}{2}$ – $\frac{3}{4}$ " (1–2 cm) long, in 2 rows on slender green twigs, pointed at the tip, soft and flexible to touch, appearing feather-like, yellowish green above, whitish below

**Bark:** brown to gray, with narrow fibrous ridges, peeling off in long strips

**Cone:** green, turning gray to brown when mature,  $\frac{3}{4}$ –1" (2–2.5 cm) wide, solitary or in small clusters at the end of branch, several 4-sided woody cone scales

**Fall Color:** brown

**Origin/Age:** native; 500–750 years

**Habitat:** wet soils, swamps, by slow rivers that flood often, can grow in dry upland soils, sun to partial shade

**Range:** throughout, an ornamental in parks and yards

**Stan's Notes:** Called "Bald" since it's a deciduous conifer, losing its leaves (needles) in fall and growing new ones in spring. Produces a large flaring or fluted base, which helps stabilize it when growing in soft, wet soils. Produces large aboveground or water growths called knees (see inset). A long-lived tree, some are more than 2,000 years old and are among the oldest living things in North America. Often called the Sequoia of the East, reaching over 100 feet (30.5 m) tall and nearly 40 feet (12 m) around at the base. Decay- and insect-resistant wood has been used to build boats and bridges. Its seeds are an important food for wildlife such as ducks and deer.





**bark**



**cone**



**close-up**





# White Spruce

*Picea glauca*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 40–60' (12–18 m)

**Tree:** single straight trunk, many horizontal branches sometimes sloping down, ragged conical crown

**Needle:** single needle,  $\frac{1}{3}$ – $\frac{3}{4}$ " (.8–2 cm) long, stiff, pointed, square in cross section, aromatic when crushed, bluish green with a line of white dots on all sides

**Bark:** light gray in color, many flaky scales, inner bark is salmon pink

**Cone:** green, turning brown at maturity, smooth to the touch, 1–2 $\frac{1}{2}$ " (2.5–6 cm) long, single or in clusters, hanging from branch

**Origin/Age:** non-native; 175–200 years

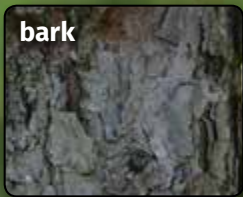
**Habitat:** variety of soils, often grows on banks of lakes and streams, sometimes in pure stands, sun to partial shade

**Range:** throughout, planted in parks, yards and along streets

**Stan's Notes:** Also known as Skunk Spruce because its crushed needles give off a strong odor that reminds some of skunk. Needles have a whitish cast, giving this tree its common name. Like all other species of spruce, White Spruce needles are square in cross section. Needles often last 7–10 years before falling off, leaving a raised base on the twig. Susceptible to fire and Spruce Budworm, a caterpillar that eats new needles. Lower branches die and fall off, leaving the trunk straight and lacking branches. A variety, Black Hills White Spruce (*P. glauca* var. *densata*), is a widely planted urban tree.



**bark**



**cone**





# Black Spruce

*Picea mariana*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 25–50' (7.5–15 m)

**Tree:** small to medium-sized slender tree with a narrow pyramid shape, many dead lower branches, upper branches widely spread and drooping

**Needle:** single needle,  $\frac{1}{4}$ –1" (.6–2.5 cm) long, densely set along twig, straight, blunt-tipped, square in cross section, dull blue-green

**Bark:** reddish brown in color, large scales, inner bark is olive green

**Cone:** lavender to purple, turning brown when mature, egg-shaped (ovate),  $\frac{1}{2}$ –1 $\frac{1}{2}$ " (1–4 cm) long, hanging from the branch

**Origin/Age:** non-native; 150–200 years

**Habitat:** wet or poorly drained soils, bogs, peats, often in pure stands or with Tamarack (pg. 67)

**Range:** throughout

**Stan's Notes:** A relatively slow-growing, long-lived tree, it is one of seven spruce species native to North America. Common along bogs and marshes, with cones usually occurring at the top of the tree. Cones mature in autumn but often don't open, remaining on the tree for up to 15 years. Heat from fire opens the cones, after which many seeds are released. This species can live as long as 200 years, but obtains a height of only 50 feet (15 m). Young twigs have tiny orange-to-brown hairs. Treetops are commonly used in planters in winter for decoration. Long fibers in the wood make it desirable for making paper. A golden-colored pitch that collects on wounds was once gathered and sold as spruce gum. Differentiated from Red Spruce (pg. 41) by its smaller cones and very different habitat.





immature  
cone

bark



cone





# Red Spruce

*Picea rubens*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 50–70' (15–21 m)

**Tree:** medium tree, single straight trunk, broadest at the bottom, narrow pointed top

**Needle:** single needle,  $\frac{1}{2}$ – $\frac{3}{4}$ " (1–2 cm) long, stout, stiff, pointed tip, 4-sided (square in cross section), shiny yellow-green with white stripes

**Bark:** reddish brown, thin with many small scales

**Cone:** green (sometimes purplish), turns reddish brown at maturity, leathery, cylindrical,  $1\frac{1}{4}$ –2" (3–5 cm) long, tapers to a round tip, hanging from branch, stalkless, round cone scales, many winged seeds within, falls apart in autumn

**Origin/Age:** native; 300–400 years

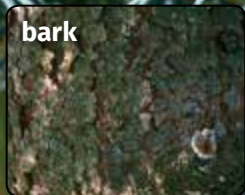
**Habitat:** rocky soils on steep slopes, ridges and mountains, acid soils, moist soils

**Range:** Appalachian Mountains and other mountainous places in the eastern part of the state

**Stan's Notes:** A tree of the Northeast and the southernmost spruce in the eastern U.S. Often in pure stands. A shallow-rooted tree, falling victim to windstorms. Can thrive in deep shade for many years, but grows nearly twice as fast in full sun. An extremely important commercial tree species. Wood is straight grained, strong, lightweight and used to make musical instruments, lumber and paper. Spruce gum was once used as raw material for chewing gum, and twigs and needles were used with flavoring and sugar to make spruce beer. Starts producing cones and seeds at 20–30 years, but maximum production occurs later. Has very large seed crops every 4–6 years. Hybridizes with Black Spruce (pg. 39) where ranges overlap. Also called Yellow Spruce or Eastern Spruce.



**bark**



**cone**





# Colorado Spruce

*Picea pungens*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 40–60' (12–18 m)

**Tree:** pyramid shape, lower branches are the widest and often touch the ground

**Needle:** single needle, ½–1" (1–2.5 cm) long, very stiff, very sharp point on the end, square in cross section, bluish green to silvery blue

**Bark:** grayish brown and flaky, becoming reddish brown and deeply furrowed with age

**Cone:** straw-colored, 2–4" (5–10 cm) long, in clusters or single, hanging down

**Origin/Age:** non-native, was introduced to the state from the Rocky Mountains; 150–200 years (can reach 600 years in some western states)

**Habitat:** variety of soils, does best in clay and moist soils, sun

**Range:** throughout, planted in cities, parks, along roads and around homes

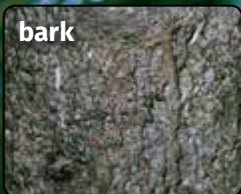
**Stan's Notes:** A common Christmas tree and landscaping tree that is widely planted around homes and along city streets. Naturalized now throughout the state. A victim of the Spruce Budworm and needle fungus, so it's not planted as much anymore. Very susceptible to *Cytospora* canker, which invades stressed trees, causing loss of branches and eventual death. Will grow in a wide variety of soils, but prefers moist and well drained. Slow growing, some living up to 600 years in the West. Needles are very sharp and square in cross section. The species name *pungens* is Latin for "sharp-pointed." Also known as Blue Spruce or Silver Spruce.





cone

bark





# Norway Spruce

*Picea abies*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 50–70' (15–21 m)

**Tree:** pyramid shape, single trunk, branches drooping or weeping

**Needle:** single needle, ½–1" (1–2.5 cm) long, with a slight curve, stiff and pointed, square in cross section, aromatic when crushed, deep blue-green

**Bark:** reddish gray, many round scales

**Cone:** straw brown, papery, 2–7" (5–18 cm) long, hangs from branch

**Origin/Age:** non-native, introduced to the U.S. from Europe and Asia; 150–200 years

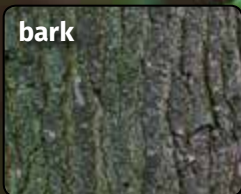
**Habitat:** rich moist soils, sun

**Range:** throughout, planted as windbreaks, in cemeteries, parks and yards

**Stan's Notes:** Perhaps the most common spruce in Pennsylvania. The fastest growing and one of the tallest spruces in the state, popular for planting as windbreaks. Produces the largest cones of all spruces. Generally a very healthy tree with few diseases. Sometimes has deformed cones, caused by Cooley Spruce Gall Adelgids (aphid-like insects) chewing on its new growth. Introduced from Europe, as the common name implies, it is the dominant tree species in the Black Forest area of Germany. One of the earliest trees used for reforestation in North America. The bark on the twigs is orange, turning reddish brown on the small branches. The trunk oozes a pitch known as burgundy pitch, which has been used in varnishes and medicine. Many horticultural varieties of this tree are available.



**bark**



**cone**





# Eastern Hemlock

*Tsuga canadensis*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 40–60' (12–18 m)

**Tree:** pyramid shape, spreading branches are horizontal with drooping tips, irregular crown

**Needle:** single needle, ½–1" (1–2.5 cm) long, arranged in 2 rows with a few shorter needles on the upper row, borne on a flexible tan twig, soft, flat and flexible, tapering at the end, dark yellow-green above, lighter-colored with 2 whitish lengthwise parallel lines below

**Bark:** dark brown to dark gray in color, deeply grooved with broad flat-topped ridges

**Cone:** green, turning brown at maturity, round to ovate, ½–1" (1–2.5 cm) long, on a short stalk, at the end of twig, hanging down

**Origin/Age:** native; 150–200 years (some reach 600 years)

**Habitat:** wet soils, cool moist sites, shade tolerant

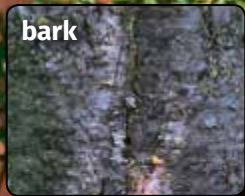
**Range:** throughout

**Stan's Notes:** One of four species of hemlock in the U.S. and the only one native to Pennsylvania. An extremely long-lived tree, some with trunk diameters measuring 4 feet (1.2 m). A very shade-tolerant tree, often growing in dense shade of taller trees, growing slowly until reaching the canopy. Because the tip of the leader shoot (treetop) droops, it often doesn't grow as straight as the other conifers. Bark is rich in tannic acid (tannin) and was once used to tan hides. Open cones will remain on the tree for up to two years. Has heavy seed crops every 2–3 years. Doesn't reproduce very well, as young trees are fragile and often do not reach maturity. Doesn't transplant well. Also called Canada Hemlock. The state tree of Pennsylvania.





**bark**



**cone**





# Balsam Fir

*Abies balsamea*

SINGLE  
NEEDLE



**Family:** Pine (Pinaceae)

**Height:** 50–75' (15–23 m)

**Tree:** tapering spire, many horizontal branches from the ground up, dark green

**Needle:** single needle, ½–1" (1–2.5 cm) long, with a spiral arrangement on the twig, soft, flat, blunt-tipped, shiny green above with 2 silvery lengthwise lines or grooves below

**Bark:** light gray, smooth with many very aromatic raised resin blisters (pitch pockets), breaking with age and leaving brown scales

**Cone:** bluish, 2–4" (5–10 cm) long, erect in dense clusters near the top of tree

**Origin/Age:** non-native; 100–150 years

**Habitat:** moist soils, in shaded forests, along bogs, sun to partial shade

**Range:** scattered locations in the eastern half of the state, planted throughout Pennsylvania

**Stan's Notes:** Well known for its fragrant needles, this is a popular Christmas tree because it holds its needles well after cutting. One of 50 fir species worldwide. One of nine fir species in North America and one of only two species east of the Rocky Mountains, with the Fraser Fir (not shown) native to the Appalachian Mountains. Often attacked by the Spruce Budworm, which eats the new needles. The upright cones break apart by autumn, leaving only a thin central stalk. Resin from the trunk was once used for making varnishes and sealing birch bark canoes. The common name "Balsam" comes from the Greek root *balsamon*, which refers to aromatic oily resins found in the tree. Also called Eastern Fir or Canada Balsam.



**bark**



**cone**



# Table Mountain Pine

*Pinus pungens*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 20–40' (6–12 m)

**Tree:** single or multiple crooked trunks, wide irregular crown of horizontal branches

**Needle:** clustered needles, 2 per cluster, 1¼–2½" (3–6 cm) long, each needle is stout, stiff and slightly twisted, dark green with white stripes

**Bark:** reddish brown with thin furrows and small scales

**Cone:** green, turning light brown at maturity, ovate, 2–4" (5–10 cm) long, in clusters of 3–5, often points down toward the trunk, stalkless, cone scales thick and strong, outer edge has a stout curved spine, containing many winged seeds, remaining on the tree many years after opening

**Origin/Age:** native; 300–400 years

**Habitat:** dry rocky soils, steep slopes and mountain ridges up to 4,500 feet (1,370 m), sun to partial shade

**Range:** southeastern quarter of the state

**Stan's Notes:** This species was first collected and named in 1794 near Table Rock Mountain in North Carolina. Grows only (endemic) in the Appalachian Mountains. Also called Mountain Pine, Prickly Pine or Hickory Pine. Known as Squirrel Pine because squirrels pull unopened cones from the tree to get seeds. The species name *pungens* is Latin for "sharp-pointed" and refers to the sharp spines on cones. Often grows as wide as it is tall. Wood is not straight and has many knots, so it doesn't have much commercial value. Used mainly for firewood and pulpwood. Often the first pine to return after an area is logged or burned. A sticky resin in the cone keeps it closed until exposed to heat from forest fires. Some cones will open if the tree is located on warm southern exposures.





**immature  
cone**

**mature cone**



**bark**



# Virginia Pine

*Pinus virginiana*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 30–60' (9–18 m)

**Tree:** medium tree, semi-straight trunk, long, spreading horizontal branches, irregular round crown

**Needle:** clustered needles, 2 per cluster, 1½–3" (4–7.5 cm) long; each needle is soft, flexible, slightly twisted and fragrant when crushed, light to dull green

**Bark:** brown to gray with thin shaggy ridges and flakes

**Cone:** green, turning reddish brown when mature, egg-shaped, tapers near tip, 1½–2¾" (4–7 cm) long, short stalk, cone scales have a ridge and are tipped with a long prickle, stays on tree for many years

**Origin/Age:** native; 75–100 years

**Habitat:** sandy soils, clay, well-drained sites, old fields and abandoned farms, sun

**Range:** southern half of the state

**Stan's Notes:** The most common of native pines in the state. It is a medium-sized tree, more short-lived than other pines. Usually grows in pure stands or with Shortleaf Pine (pg. 61), Eastern Redcedar (pg. 69) or other pine species. Often called Poverty Pine or Scrub Pine due to its scrubby, scraggly appearance, a result of the poor soils it inhabits. Frequently used to reforest areas with poor or badly eroded soils. Quickly colonizes recently burned areas and old farm fields. Often planted and sold as a Christmas tree. Noted for its dark green color, pleasant pine scent and retention of needles. Used for pulpwood, firewood and railroad ties. Seldom used in the commercial lumber trade. Favorite of woodpeckers, which excavate nesting cavities in its dead trunks. Its prolific seed source is favored by Pine Siskins and other finches. Deer browse on branches of young trees in winter.



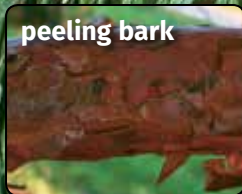
**bark**



**cone**



**peeling bark**





## Scotch Pine

*Pinus sylvestris*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 30–80' (9–24.5 m)

**Tree:** single trunk that is often crooked, with spreading irregular crown

**Needle:** clustered needles, 2 per cluster, 1½–3" (4–7.5 cm) long; each needle is stiff, twisted and pointed

**Bark:** orange-brown and flaky lower, bright orange and papery upper

**Cone:** ovate, 1–2½" (2.5–6 cm) long, on a short stalk, in clusters of 2–3, frequently pointing backward up the branch

**Origin/Age:** non-native, introduced to the U.S. from Europe; 100–150 years

**Habitat:** well-drained sandy soils, sun

**Range:** throughout, planted along roads, in parks and yards and as shelterbelts

**Stan's Notes:** One of the more popular Christmas trees grown. Among the first species of trees introduced to North America. The most widely distributed pine in the world, found from Europe to eastern Asia, the Arctic Circle to the Mediterranean Sea, and now North America. In Europe it grows tall and straight, but in North America it seldom has a straight trunk because of the seed source chosen by early settlers; apparently it was easier to collect cones for seeds by climbing trees with crooked trunks. Growing conditions, insect pests and disease also crook trunks. Easily identified by its orange-to-red upper branch bark (see inset) that often peels from the branches in thin papery strips. The main trunk bark has loose scales that fall off to reveal a reddish brown inner bark. Two twisted needles per cluster are characteristic. Also known as Scots Pine.





**bark**

**cone**



# Austrian Pine

*Pinus nigra*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 40–60' (12–18 m)

**Tree:** often irregular-shaped with large, open horizontal branches, broad round crown

**Needle:** clustered needles, 2 per cluster, 3–6" (7.5–15 cm) long; each needle is twisted, sharply pointed, not breaking cleanly when bent, dark green

**Bark:** gray-brown with reddish branches, very scaly

**Cone:** green, turning brown at maturity, woody, ovate, 1–3" (2.5–7.5 cm) long, each cone scale ending in a sharp point

**Origin/Age:** non-native, introduced to the U.S. from southern Europe; 100 or more years

**Habitat:** wide variety of soils, sun, shade

**Range:** throughout, planted in parks, along roads, as windbreaks and wildlife shelterbelts

**Stan's Notes:** A very important tree, also known as European Black Pine. Originally from Europe, it was introduced to North America in 1759. This was the first species of trees to be planted during the dedication of the Dust Bowl Shelterbelt Project in 1935. Frequently confused with Red Pine (pg. 59) but easily differentiated from it by the way the needles break. Unlike Red Pine needles, Austrian Pine needles don't break cleanly when bent. Widely planted in parks and along roads because of its tolerance to salt spray, air pollution and dry soils. Easily grown from seed, it thrives in many soil types and transplants well.



immature  
cone



bark



cone



# Red Pine

*Pinus resinosa*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 40–80' (12–24.5 m)

**Tree:** single straight trunk, dead lower branches fall off soon after dying, broad round crown

**Needle:** clustered needles, 2 per cluster, 4–6" (10–15 cm) long; each needle straight, brittle, pointed, breaks when bent, dark green

**Bark:** reddish brown, becoming redder higher up, many flat scales or plates

**Cone:** green, turning brown at maturity, 2–3" (5–7.5 cm) long, containing many small brown nutlets


**Origin/Age:** non-native; 150–200 years

**Habitat:** dry sandy soils, often in pure stands, sun

**Range:** throughout, frequently in mass plantings, planted in parks, yards and along streets

**Stan's Notes:** A very impressive sight when planted in large pure stands. Often planted and sold as Christmas trees. Also called Norway Pine because the early settlers confused the tree with the Norway Spruce (pg. 45) of northern Europe. Often confused with Austrian Pine (pg. 57), which has needles as long but that bend without breaking cleanly. Common name comes from its reddish bark. The scaly bark peels off the mature tree and lies at its base, resembling scattered jigsaw puzzle pieces. Branches occur in whorls around the trunk. Cones remain on tree for several years. Heavy seed crops every 4–7 years. Needs a fire to expose mineral soils for seeds to germinate. Used in reforestation projects.





**immature  
cone**



**bark**



**cone**



# Shortleaf Pine

*Pinus echinata*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 70–100' (21–30.5 m)

**Tree:** large tree, single straight trunk, many horizontal branches, older trees often lack branches on lower half, round crown

**Needle:** clustered needles, 2 or 3 per cluster,  $2\frac{3}{4}$ – $4\frac{1}{2}$ " (7–11 cm) long; each needle is soft, flexible, slender, sharply pointed, yellowish green

**Bark:** reddish brown with large, irregular flat scales

**Cone:** yellowish green, turning light brown at maturity, oblong, tapers near tip,  $1\frac{1}{2}$ – $2\frac{1}{2}$ " (4–6 cm) long, short stalk, thin cone scale, small prickle at the tip

**Origin/Age:** native; 100–150 years

**Habitat:** sandy and gravelly soils on south-facing slopes and ridges, old fields, abandoned farms, sun

**Range:** south central edge of the state

**Stan's Notes:** One of the fastest-growing pines. After fires or cutting, it quickly reestablishes with many seedlings and suckering shoots, which is uncommon for pines. Often in pure stands or with other pines. Has a hard, strong, yellow-to-orange wood. Is an important commercial tree, producing lumber, millwork, veneer, pulpwood and flooring. Turpentine is produced from the resin. Has the shortest needles of the major southern yellow pines, hence the common name. Wood is often sold as Southern Yellow Pine. Known by other names such as Carolina Pine, Arkansas Pine, Soft Pine and Bull Pine. Reaches cone-bearing maturity at 20–30 years. Seeds look like small maple seeds and are capable of being carried by the wind as far as a quarter mile from the cone. Widespread in the Southeast, it is native in more than 20 states. Reaches its northern limits in southern Pennsylvania.



**bark**



**cone**



# Pitch Pine

*Pinus rigida*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 50–70' (15–21 m)

**Tree:** single straight trunk, many horizontal branches with large gaps, broad irregular crown

**Needle:** clustered needles, 3 per cluster, 3–5" (7.5–12.5 cm) long; each is stout, stiff, often twisted, yellow-green

**Bark:** dark gray to brown, thick and deeply furrowed into broad scales

**Cone:** yellow-brown, turning light brown when mature, egg-shaped, 1¾–2¾" (4.5–7 cm) long, single on branch, stalkless, each scale is thin, flat and armed with a stiff, curved spine, many winged triangular seeds within, remains on branch for many years

**Origin/Age:** native; 100–150 years

**Habitat:** sandy and gravelly soils on steep slopes and ridges with elevations up to 3,500 feet (1,070 m)

**Range:** throughout, except for the northern quarter

**Stan's Notes:** The most common native pine in Pennsylvania. The greatest abundance in North America is in Pennsylvania and New Jersey, where it often forms dense pure stands known as Pine Barrens. A pine of nutrient-poor soils and dry locations, often growing in small groups. Slow growing for the first 5–10 years, then grows rapidly. Cones remain unopened on tree for many years. Forest fires cause them to open and release seeds, which helps to colonize newly burned soils. Often used for reforestation where few other trees will grow or where soil has been depleted. Light brown wood is soft, knotty and not very strong but very resistant to decay and mainly used for fuel and charcoal production. Once used as a resin source for making turpentine and tar. Common name refers to the high resin content. Seeds are an important food source for bird species such as Pine Warbler, Pine Grosbeak and chickadee.





**bark**



**immature cone**



**cone**





# Eastern White Pine

*Pinus strobus*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 70–100' (21–30.5 m)

**Tree:** single tall trunk, whorls of horizontal branching evenly spaced along trunk with branches concentrating near the top when mature, irregular crown

**Needle:** clustered needles, 5 per cluster, 3–5" (7.5–12.5 cm) long; each needle is soft, flexible and triangular in cross section

**Bark:** gray to brown and smooth when young, breaking with age into large broad scales that are separated by deep furrows

**Cone:** green, turning brown when mature, drooping and curved, 4–8" (10–20 cm) long, pointed white tip on each cone scale, resin coated

**Origin/Age:** native; 200–250 years

**Habitat:** wide variety of soils, from dry and sandy to moist upland sites, sun

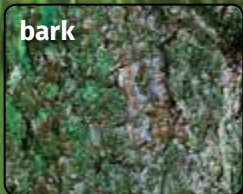
**Range:** throughout

**Stan's Notes:** One of the largest conifers in Pennsylvania. A favorite place for Bald Eagles to build their nests. Also known as Northern White Pine, Soft Pine or Weymouth Pine. The most important tree until about 1890 in North America, where its wood was used in buildings in many large eastern U.S. cities. White pine blister rust, a fungus that slowly girdles the trunk, kills many Eastern White Pines. Restoration efforts are underway in many parts of the country to bring this species back.





**bark**



**cone**





# Tamarack

*Larix laricina*

CLUSTERED  
NEEDLES



**Family:** Pine (Pinaceae)

**Height:** 40–70' (12–21 m)

**Tree:** cone shape, single straight trunk, narrow crown

**Needle:** clustered needles on any twigs and branches older than 1 year, 12–30 per cluster,  $\frac{3}{4}$ –1 $\frac{1}{4}$ " (2–3 cm) long, single needles on current year's growth; each needle is soft, pointed, triangular in cross section, light green

**Bark:** gray when young, reddish brown and flaky scales with age

**Cone:** light brown, round,  $\frac{1}{2}$ –1" (1–2.5 cm) diameter, on a short curved stalk

**Fall Color:** bright golden yellow

**Origin/Age:** non-native; 100–150 years

**Habitat:** wet soils, swamps, bogs, occasionally in uplands, sun

**Range:** scattered in central Pennsylvania and the eastern half of the state, planted throughout in parks

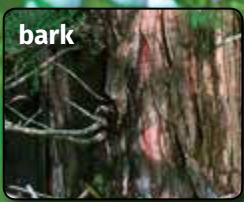
**Stan's Notes:** Like the Bald Cypress (pg. 35), this is a deciduous conifer. A highly unusual species because it sheds its leaves (needles) in autumn. Turns bright golden yellow in the fall before shedding its needles. One of the northernmost trees in North America and also the world. Almost always grows in wetlands but can also be planted as an ornamental in yards. Also known as Eastern Larch or American Larch. Larch Sawfly larvae eat the needles and in some years can defoliate entire stands of Tamarack. The roots of this tree have been used for lashing wooden slats together.







cone



bark



# Eastern Redcedar

*Juniperus virginiana*

SCALY  
NEEDLES



**Family:** Cypress (Cupressaceae)

**Height:** 25–50' (7.5–15 m)

**Tree:** pyramid shape, single trunk is frequently crooked or leaning and often fluted with folds and creases, may be divided, with pointed crown

**Needle:** scaly needles, 1–2" (2.5–5 cm) long, made of scale-like needles, 1/8" (.3 cm) long, that overlap each other, each with a sharply pointed tip, dark green

**Bark:** reddish brown to gray, thin and fibrous, peeling with age into long narrow shreds; reddish inner bark is smooth

**Cone:** dark blue with a white powdery film, appearing berry-like, 1/2" (1 cm) long, containing 1–2 seeds

**Fall Color:** reddish brown during winter

**Origin/Age:** native; 300 years

**Habitat:** dry soils, open hillsides, wet swampy areas, sun

**Range:** throughout

**Stan's Notes:** One of the first trees to grow back in prairies or fields after a fire. Slow growing, producing what appear to be blue berries, which are actually cones. Cones are used to flavor gin during the distillation process. Many bird species spread seeds by eating cones, dispersing seeds in their droppings. Redcedar wood is aromatic and lightweight. Often used to make storage chests, lending its scent to linens. The smooth reddish inner bark was called *baton rouge* ("red stick") by early French settlers who found the tree growing in Louisiana. Affected by cedar-apple rust, which causes large jelly-like orange growths. Its sharply pointed leaves can cause slight skin irritation. Also called Eastern Juniper or Red Juniper.

## GLOSSARY

**Acorn:** A nut, typically of oak trees, as in the White Oak. See *nut* and *fruit*.

**Aggregate fruit:** A fruit composed of multiple tiny berries, such as a mulberry, raspberry or blackberry. See *fruit*.

**Alternate:** A type of leaf attachment in which the leaves are singly and alternately attached along a stalk, as in Quaking Aspen.

**Arcuate:** Curved in form, like a bow, as in veins of Alternate-leaf Dogwood leaves.

**Asymmetrical leaf base:** A base of a leaf with lobes unequal in size or shape, as in elms. See *leaf base*.

**Berry:** A fleshy fruit with several seeds within, such as European Buckthorn. See *fruit*.

**Bract:** A petal-like structure on a flower, as in Blue Beech.

**Branch:** The smaller, thinner, woody parts of a tree, usually bearing the leaves and flowers.

**Bristle-tipped:** A type of leaf lobe ending in a projection, usually a sharply pointed tip, as in Red Oak.

**Buttress:** A wide or flared base of a tree trunk that helps to hold the tree upright in unstable soils, as in Bald Cypress.

**Capsule:** A dry fruit that opens along several seams to release the seeds within, as in Ohio Buckeye. See *pod*.

**Catkin:** A scaly cluster of usually same sex flowers, as in Bigtooth Aspen or any willow.

**Chambered pith:** The central soft part of a twig that is broken into spaced sections. See *pith*.

- Clasping:** A type of leaf attachment without a leafstalk in which the leaf base grasps the main stalk, partly surrounding the stalk at the point of attachment.
- Clustered needles:** A group of needles emanating from a central point, usually within a papery sheath, as in pine trees.
- Compound leaf:** A single leaf composed of at least 2 but usually not more than 20 leaflets growing along a single leafstalk, as in Smooth Sumac.
- Cone:** A cluster of woody scales encasing multiple nutlets or seeds and growing on a central stalk, as in coniferous trees.
- Cone scale:** An individual overlapping projection, often woody, on a cone, as in Austrian Pine.
- Conifer:** A type of tree that usually does not shed all of its leaves each autumn, such as pine or spruce.
- Crooked:** Off-center or bent in form, not straight, as in a Black Locust trunk.
- Deciduous:** A type of tree that usually sheds all of its leaves each autumn, such as White Oak or Sugar Maple.
- Dioecious:** A type of tree that has male and female flowers on separate trees of the same species, as in Quaking Aspen. See *monoecious*.
- Disk:** A flattened, disk-like fruit that contains a seed, as in the American Elm. See *samara*.
- Double-toothed margin:** A jagged or serrated leaf edge that is composed of two types of teeth, usually one small and one large, as in Siberian Elm.
- Drupe:** A fleshy fruit that usually has a single seed, such as a cherry. See *fruit*.

**Flower:** To bloom, or produce a flower or flowers as a means of reproduction, as in deciduous trees.

**Fruit:** A ripened ovary or reproductive structure that contains one or more seeds, such as a nut or berry.

**Furrowed:** Having longitudinal channels or grooves, as in Swamp White Oak bark.

**Gall:** An abnormal growth of plant tissue that is usually caused by insects, microorganisms or injury.

**Gland:** An organ or structure that secretes a substance, as in Nannyberry leafstalks.

**Intolerant:** Won't thrive in a particular condition, such as shade.

**Lance-shaped:** Long, narrow and pointed in form, like a spearhead, as in Weeping Willow leaves.

**Leaf base:** The area where a leafstalk attaches to the leaf.

**Leaflet:** One of the two or more leaf-like parts of a compound leaf, as in White Ash.

**Leafstalk:** The stalk of a leaf, extending from the leaf base to the branch. See *petiole*.

**Lenticel:** A small growth, usually on bark, that allows air into the interior of a tree, as in Paper Birch.

**Lobed leaf:** A single leaf with at least one indentation (sinus or notch) along an edge that does not reach the center or base of the leaf, as in oaks or maples.

**Margin:** The edge of a leaf.

**Midrib:** The central vein of a leaf, often more pronounced and larger in size than other veins, as in Black Cherry.

- Monoecious:** A type of tree that has male and female flowers on the same tree, as in Paper Birch. See *dioecious*.
- Naturalized:** Not originally native, growing and reproducing in the wild freely now, such as Russian-olive.
- Needle:** A long, usually thin, evergreen leaf of a conifer.
- Notch:** A small indentation along the margin of a leaf, as in Red Maple.
- Nut:** A large fruit encased by hard walls, usually containing one seed, such as an acorn. See *fruit*.
- Nutlet:** A small or diminutive nut or seed, usually contained in a cone or cone-like seed catkin, as in Red Pine or Paper Birch. See *fruit*.
- Opposite:** A type of leaf attachment in which leaves are situated directly across from each other on a stalk, as in Sugar Maple.
- Ovate:** Shaped like an egg, as in Austrian Pine cones.
- Palmate compound leaf:** A single leaf that is composed of three or more leaflets emanating from a common central point at the end of the leafstalk, as in Ohio Buckeye.
- Petiole:** The stalk of a leaf. See *leafstalk*.
- Petiolule:** The stalk of a leaflet in a compound leaf.
- Pitch pocket:** A raised blister that contains a thick resinous sap, as in Balsam Fir bark.
- Pith:** The central soft part of a twig in a young branch, turning to hard wood when mature.
- Pod:** A dry fruit that contains many seeds and opens at maturity, as in Kentucky Coffeetree. See *capsule*.

**Pollination:** The transfer of pollen from the male anther to the female stigma, usually resulting in the production of seeds.

**Pome:** A fleshy fruit with several chambers that contain many seeds, such as an apple. See *fruit*.

**Rachis:** The central or main stalk of a compound leaf, as in the European Mountain-ash.

**Samara:** A winged fruit that contains a seed, as in maples, ashes or elms. See *disk* and *fruit*.

**Seed catkin:** A small cone-like structure that contains nutlets or seeds, as in birches.

**Sessile:** Lacking a stalk and attaching directly at the base, as in Common Hoptree leaflets.

**Simple leaf:** A single leaf with an undivided or unlobed edge, as in American Elm.

**Sinus:** The recess or space in between two lobes of a leaf, as in the Red Oak.

**Spine:** A stiff, usually short, sharply pointed woody outgrowth from a branch or cone, as in Pitch Pine cones. See *thorn*.

**Stalk:** A thin structure that attaches a leaf, flower or fruit to a twig or branch.

**Stipule:** An appendage at the base of a stalk, usually small and in pairs, with one stipule on each side of stalk, as in Nannyberry.

**Sucker:** A secondary shoot produced from the base or roots of a tree that gives rise to a new plant, as in Quaking Aspen.

**Tannin:** A bitter-tasting chemical found within acorns and other parts of a tree, as in oaks.

**Taproot:** The primary, vertically descending root of a mature tree.



**Terminal:** Growing at the end of a stalk or branch.

**Thorn:** A stiff, usually long and sharply pointed woody outgrowth from a branch or trunk, as in Canada Plum. See *spine*.

**Tolerant:** Will thrive in a particular condition, such as shade.

**Understory:** The small trees and other plants that grow under a canopy of larger trees; the shady habitat beneath a forest canopy.

**Whorl:** A ring of three or more leaves, stalks or branches arising from a common point, as in Red Pine or Northern Catalpa.

**Winged:** Having thin appendages, attached to a seed, branch or twig, as in maple seeds.

**Woody:** Composed of wood, as in trees or cones. See *cone scale*.

## CHECKLIST/INDEX

*Use the boxes to check trees you've seen.*

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## ABOUT THE AUTHOR

Naturalist, wildlife photographer and writer **Stan Tekiela** is the originator of the popular state-specific field guide series that includes *Birds of Pennsylvania Field Guide*. Stan has authored more than 190 educational books, including field guides, quick guides, nature books, children's books, playing cards and more, presenting many species of animals and plants.

With a Bachelor of Science degree in Natural History from the University of Minnesota and as an active professional naturalist for more than 30 years, Stan studies and photographs wildlife throughout the United States and Canada. He has received various national and regional awards for his books and photographs. Also a well-known columnist and radio personality, he has a syndicated column that appears in more than 25 newspapers, and his wildlife programs are broadcast on a number of Midwest radio stations. Stan can be followed on Facebook and Twitter. He can be contacted via [www.naturesmart.com](http://www.naturesmart.com).

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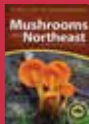
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### About the Author

Naturalist Stan Tekiela is an award-winning wildlife photographer and the author of many popular state-specific field guides. He has written educational books about wildlife, including children's books, quick guides and more, presenting birds, mammals, reptiles, amphibians, trees, wildflowers and cacti.

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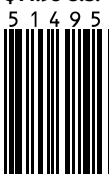


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