

What is a Conifer?

Conifers vary considerably among the world's 600-plus species, but they do have traits in common. Conifers are trees or shrubs with separate male (pollen) and female (seed) cones. The seeds develop on cone scales or related structures, not within protective fruits as in flowering plants. Conifers increase in diameter through secondary growth, and they conduct water in tapered cells called tracheids. Most have needle- or awl-shaped leaves, though this varies.

Arboretum Conifer Collection

Blandy Experimental Farm is home to the State Arboretum of Virginia. The Arboretum's conifer collection includes about 1,400 specimens from across North America and around the globe. The collection features one-third of the world's pine species, as well as less common species such as China fir, Japanese umbrella pine, and sawara cypress. Blandy is also home to a grove of over 300 ginkgo trees, close relatives of conifers. Several of our conifers are state champions.



The Arboretum's State Champion Umbrella Pine

Comparison of Common Conifers

Pine

Needles in clusters of 2-5, cones rigid



Spruce

Needles sharp-pointed, attach singly to stem on short stalks; cones dangle from branches

Hemlock

Short, blunt needles attach singly to stem; cones small, egg-shaped



Fir

Leaves flat, blunt-tipped, attaching directly to stem on rounded bases; cones upright, disintegrating in place

Top 3 Images Courtesy Va. Dept. of Forestry
Bottom Image Courtesy USDA

Conifer Trivia

Tallest in the world:

Coast redwood
over 375 feet tall

Tallest in eastern U.S.:

White pine
over 180 feet tall

Oldest in the world:

Bristlecone pine
over 4800 years old

Oldest in eastern U.S.:

Arborvitae
over 1000 years old

Most massive:

Giant sequoia
over 30 feet in diameter

Most beautiful:

You decide!



A Guide to the Conifer Trail



Cedar of Lebanon Cones

State Arboretum of Virginia
At the University of Virginia's Historic
Blandy Experimental Farm



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1. Japanese umbrella pine (*Sciadopitys verticillata*) A rare species, once widespread but now native only to southern Japan. Needles formed from two fused leaves. Beautiful specimen tree. **C***

2. Bald cypress (*Taxodium distichum*) A tree of southern swamps known for “knees” that grow up from its roots in wet soil. Leaves turn from soft green to bronze in autumn before falling. **D****

3. Incense cedar (*Calocedrus decurrens*) Crushed leaves have a fragrant, familiar aroma. A western U.S. native used to make pencils. **D**

4. China fir (*Cunninghamia lanceolata*) A native of Asia used in construction. It is used in the U.S. as a landscape tree, though in cool climates the branches tend to brown and drop.

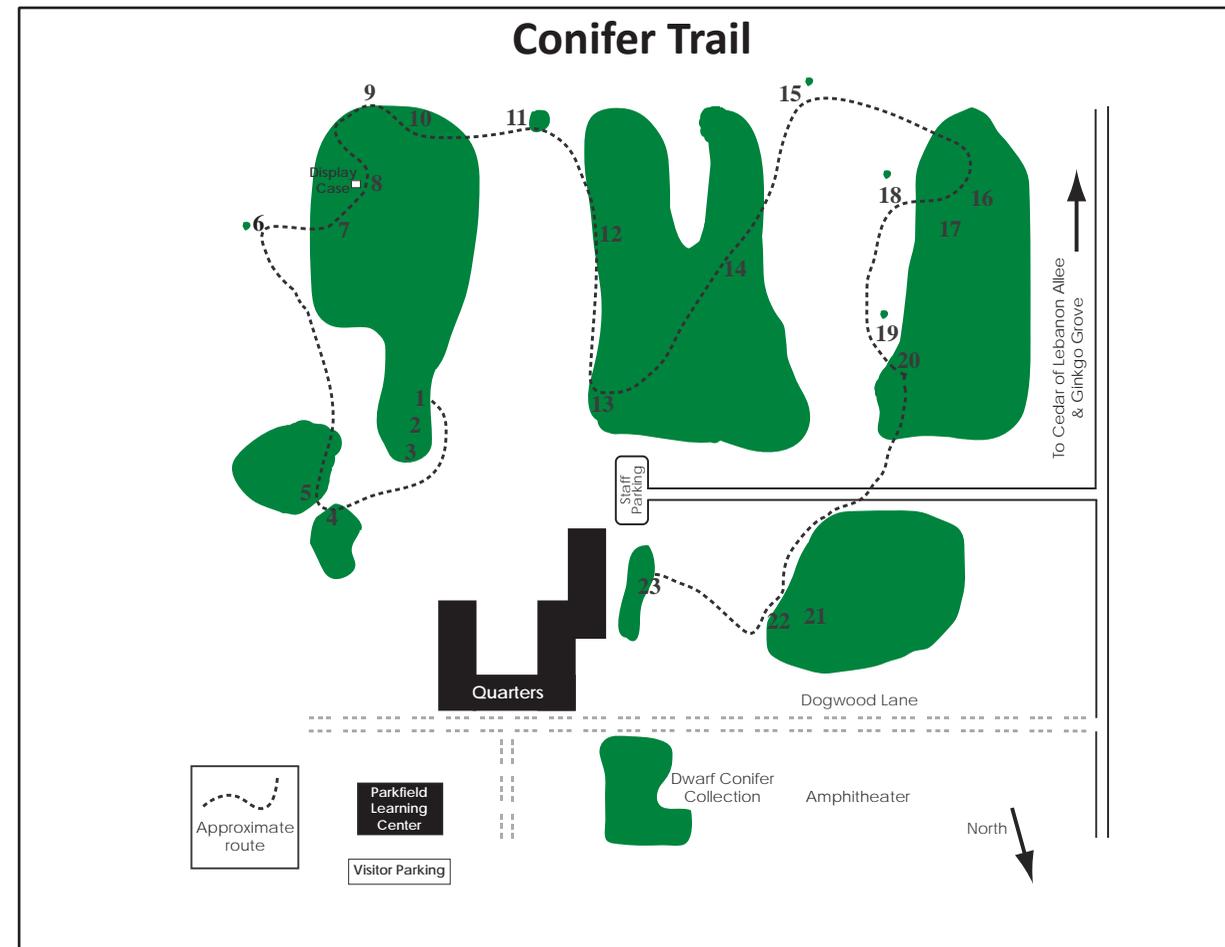
5. Japanese cedar (*Cryptomeria japonica*) A beautiful, long-lived tree that can reach 150 feet. Traditionally planted at shrines and tombs.

6. Fraser fir (*Abies fraseri*) Native to the southern Appalachians. Prefers cool, foggy habitats at mid to high elevation. Fraser and balsam firs are in decline due to introduced balsam woolly adelgid. **D**

7. White fir (*Abies concolor*) Native to the western U.S. mountains. Needles are flat and blunt-tipped, typical of firs. A useful landscape tree.

8. Balsam fir (*Abies balsamea*) Native from Virginia to maritime Canada. Seeds are eaten by squirrels, songbirds, and other wildlife.

9. Blue Atlas cedar (*Cedrus atlantica* ‘Glauca’) Popular landscape tree prized for its blue needles and attractive form. Note the spiral arrangement of its needles, common in true cedars. Best viewed from the open lawn.



10. European larch (*Larix decidua*) A deciduous conifer that sheds its golden yellow needles each fall. The needles arise from short spurs or short shoots.

11. Norway spruce (*Picea abies*) The most commonly planted ornamental spruce in the U.S. Can be recognized from a distance by its pendulous branches. Used in making high-quality musical instruments.

12. Cedar of Lebanon (*Cedrus libani*) Once used in shipbuilding and embalming. Has been cut extensively in its native Turkey and Lebanon, but restoration is underway. Pictured on the Lebanese flag. **D**

13. Sawara cypress (*Chamaecyparis pisifera*) An important timber tree in Japan known for its strong, fragrant wood. A relative of our eastern white cedar.

14. Eastern hemlock (*Tsuga canadensis*) Once an important member of eastern forests, now succumbing to the sap-feeding hemlock woolly adelgid. Unusual for a conifer, it grows well in shade. **D**

15. Red spruce (*Picea rubens*) The beautiful, resonant wood is used to make high-quality violins, guitars, mandolins, and other instruments. The sap was once used to make spruce chewing gum.

16. Douglas fir (*Pseudotsuga menziesii*) In the U.S., only redwoods and sequoias grow taller. The hard, strong wood has been used for ship masts, dock pilings, and railroad ties. Cones with distinctive three-pronged appendages.

17. Ponderosa pine (*Pinus ponderosa*) A dominant tree in the west that can reach 250' tall. Native Americans used needles to treat cough and fever and made a blue dye from the roots. **C**

18. Western redcedar (*Thuja plicata*) A massive, long-lived native of the Pacific Northwest. Its aromatic, water-resistant wood is used for roof shingles, chests, greenhouses, and saunas, and historically for totem poles and canoes.

19. Himalayan white pine (*Pinus wallichiana*) Attractive tree having soft, flexible needles in bundles of five and cones up to 10 inches long. **C**

20. White spruce (*Picea glauca*) Native of North America's northern forests. Foliage eaten by rabbits, grouse; seeds favored by red squirrels.

21. Arizona cypress (*Hesperocyparis arizonica*) A drought-tolerant native of the U.S. Southwest. This specimen is the Virginia state champion. **C, D**

22. Dawn redwood (*Metasequoia glyptostroboides*) A “living fossil,” thought to be extinct by western science until found growing in China in the 1940s. Now widely planted as an ornamental. **D**

23. American arborvitae (*Thuja occidentalis*) Having awl-shaped leaves and small, flower-like cones. The leaves provide food, and the dense canopy provides shelter for wildlife.

*** C = Virginia State Champion; ** D = Dial-a-Tree Recordings available at blandy.virginia.edu**