



Trees for the Christmas Season

Stephen G. Saupe

*College of St. Benedict/St. John's University
Collegetown, MN 56321; 320-363-2782*

Conifers are trees, such as pines, that produce their seeds in cones. Typically, these plants are evergreen. Conifers are adapted for survival in cold and dry climates such as is found in Minnesota, especially during the winter. These plants are designed to minimize water loss (a major problem for trees in the winter) by possessing small leaves (*needles*) with a thick waxy covering (*cuticle*). Since the growing season is short, being evergreen gives them a quick start on growing when conditions become favorable.

Conifers have separate male and female cones that are typically produced on the same tree (*monoecious*). Male cones, which produce the pollen, are usually found on lower branches, and the female cones on upper branches. It takes two years from the time of pollination to produce mature seeds. The first year following pollination is primarily a period during which the female structures prepare for fertilization and seed development.

Common groups of conifers include:

1. **Pines** (genus *Pinus*)

The leaves (needles) are produced in groups (fascicles), the cones have woody scales that don't disintegrate (are persistent). The cones are not typically produced at the end of the branches (subterminal).

The most popular Christmas tree is Scotch pine (*Pinus sylvestris*). It has needles in groups of two. The needles are twisted around one another. The young branches have a distinctly orange colored bark (check out the "swayed pines"). Medium needle length (1-3 inches), easy to decorate, good needle retention. Native to Europe.

Another pine sold at Christmas is White pine (*Pinus strobus*). It has needles in clusters of five, they are about 2 inches long and very soft to the touch. The branches are very delicate and soft to the touch but they do not hold ornaments particularly well.

Norway or Red pine (*Pinus resinosa*) is a full tree with stout branches and long needles (3-5 inches). Needles in groups of two. Good needle retention, flocks well. MN state tree. It is a native tree but got the name "Norway" pine because it reminded the settlers of the trees back in Europe.

2. **Spruces** (*Picea*)

The needles arise singly from the twig and are alternately arranged. The needles are sessile (without a stalk called a petiole) and leave a woody peg on the twig when they fall off. The needles are four-angled needles and will roll between your fingers. The cones are pendant, subterminal (just behind the tip) and the scales are persistent (in other words, the cone doesn't fall apart when it is mature).

White spruce (*Picea glauca*) trees have short needles (1/2 - 3/4 inch long), grayish-green. Poor needle retention. Cones about 2 inches with smooth margins of scales. Native to Canada, NE US.

A beautiful, but somewhat bad-smelling Christmas tree is Blue spruce (*Picea pungens*). Its needles are slightly longer than white spruce (ca 3/4 - 1 inch), very sharp pointed (ouch!), and have a blue-green color. The cones are 2.5 - 4 inches with ragged margins. Native to the Rockies, Wyoming to New Mexico.

3. **Firs** (*Abies*)

The needles are singly attached, alternate, sessile and leave a large round depression when they are removed. The cone is upright, subterminal and disintegrates at maturity. They are slender, spire-like trees with a pointed top.

Frasier fir (*Abies fraseri*) is the "primo" Christmas tree. It has dark green needles that are borne in one plane, something like a feather. There are pronounced white lines beneath and the needles curve upward. They have

excellent needle retention and are very fragrant. Native to high mountains in Tennessee, North Carolina and Virginia.

Balsam fir (*Abies balsamea*), native to eastern North America and Canada, including Minnesota, has flat needles. Like Fraser fir, the needles are all in one plane. The needles are dark green and silvery underneath, though they don't have as distinctive white lines. Balsam fir has blisters that produce a very fragrant resin that has been used to seal microscope slides and to produce turpentine. Canaan fir is a natural hybrid between balsam and Fraser fir.

4. **Larch or tamarack** (*Larix*)
Needles occur in clusters at end of short spur shoots. The needles are deciduous. The cone is upright, subterminal and has persistent scales. Not used as a Christmas tree, although Dr. Terry Lilybridge (personal communication) indicates that it is possible to cut a dormant tamarack a few weeks before Christmas and then bring it inside and put it in water and it will leaf out in time for the holiday.
5. **Douglas fir** (*Pseudotsuga menzeseii*)
Evergreen, with alternate needles that have a short petiole. The needles are flat and leave a small round raised scar when they are removed. The needles are spread all around the twig. The cone is pendant, subterminal and has two bracts that are exerted (looks like a snakes tongue or mouse ears). It has pointed buds. This tree is native the Pacific Northwest and Canada. It is an important timber tree and becoming popular for Christmas trees.
6. **Hemlock** (*Tsuga*)
Evergreen, with alternate leaves that have a petiole that leaves a woody "cushion". The cones are terminal (produced at the end of the branches). Tip of tree waves in breeze. Not a common Christmas tree in MN.
7. **Red cedars or junipers** (*Juniperus*)
Group of fairly small trees and shrubs. Leaves are small and scale-like on young twigs, sharp pointed on older twigs. Produce a bluish berry-like cone instead of the typical woody cone. Common Minnesota trees: Eastern red cedar, Common juniper. These are not used as Christmas trees.
8. **White cedars or arborvitae** (*Thuja*)
Similar to the juniper except the branches are flattened, not round. Produce a small woody cone. These are not used as Christmas trees.

A Key to Some Species Used Commonly for Christmas Trees

- 1a. Needles in bundles . . . go to 2
- 1b. Needles solitary go to 4
- 2a. Needles in groups of 5 White pine
- 2b. Needles in groups of 2 go to 3
- 3a. Needles longer than 3 inches Red pine
- 3b. Needles 3 inches or shorter Scotch pine
- 4a. Needles flat go to 5
- 4b. Needles angled, can roll in fingers . . . go to 7
- 5a. Buds pointed, needles spiraled around twig like a bottle brush Douglas fir
- 5b. Buds rounded, needles in one plane like a feather go to 6
- 6a. Needles very dark green, 2 distinct white lines beneath, needles curved upward Fraser fir
- 6b. Needles dark green, silvery beneath with fainter lines, needles not curved upward Balsam fir
- 7a. Needles very sharp tipped, blue green Blue spruce
- 7b. Needles not sharp tipped, green White spruce

