

**Plant Profiles: HORT 2242 Landscape Plants II**  
**PINACEAE FAMILY**

Family Characteristics of Pine, Spruce and Fir

**Genera:** *Pinus* (pine), *Picea* (spruce), *Abies* (fir)

**Family Name:** Pinaceae – pine family

**General Description:** Pines, spruces and firs are members of the Pinaceae family and share basic morphological and reproductive characteristics. Pines, spruces and firs are needle-bearing, pyramidal trees (at least when young) with branches growing in a whorled pattern. They are monoecious, cone-bearing plants. To the casual observer they look very much the same and are frequently lumped together and called a “pine” or often “a Christmas tree”. Since the most important features of a plant family are the reproductive structures, this Plant Profile will focus on the male, female and seed bearing structures of Pinaceae.

**NOTE:** For complete information on all the steps listed please consult *Plant Profiles: Hort2242 Landscape Plants II - How to Identify Pine, Spruce and Fir*.

**Resources Consulted:**

Dirr, Michael A. *Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses*. Champaign: Stipes, 2009. Print.

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**Keywords/Tags:** Pinaceae, tree, conifer, cone, needle, evergreen, *Pinus*, pine, *Picea*, spruce, *Abies*, fir



**Pinaceae characteristics:**

- Description: Pines, spruces and firs are gymnosperms. Gymnosperms do not produce true flowers or true fruits although their reproductive structures are often loosely referred to as such. They are monoecious; producing male pollen cones and separate female seed cones all on the same plant. This image shows the male pollen cones. They are usually clustered at the base of the new shoot and turn yellow with pollen. The wind disperses the pollen and the pollen cones then turn brown, dry up and eventually fall off the stem.
- Image Source: Karren Wcisel, TreeTopics.com
- Image Date: April 28, 2010
- Image File Name: pinaceae\_7593.png



#### Pinaceae characteristics:

- Description: The female seed cones are produced at the tip of the new shoot. The newly developed cone is often colorful and can be quite ornamental upon close inspection. This color phase quickly changes as the female seed cone is fertilized and matures.
- Image Source: USDA-NRCS PLANTS Database / Herman, D.E., et al. 1996. *North Dakota tree handbook*. USDA NRCS ND State Soil Conservation Committee; NDSU Extension and Western Area Power Administration, Bismarck.
- Image Date: Unknown
- Image File Name: pimu80\_002\_lhp.jpg



#### Pinaceae characteristics:

- Description: Notice the male pollen cones at the base of the new shoot of this pine. The new shoot is also called the "candle". The female seed cone will develop at the top of this shoot, a new terminal bud will develop and the needles will expand.
- Image Source: Karren Wcisel, TreeTopics.com
- Image Date: April 28, 2010
- Image File Name: pinaceae\_7585.png



#### Cone:

- Description: The seed bearing structure of members of the Pinaceae family is a cone. *Pinus* cones take two years to complete their life cycle. On a pine it is common to see young, immature 1<sup>st</sup> year cones and mature (open or unopened) 2<sup>nd</sup> year cones all on the same plant. Notice the immature cones developing near the top of this stem and the mature cone on older growth.
- Image Source: Karren Wcisel, TreeTopics.com
- Image Date: March 6, 2009
- Image File Name: pinus\_cone\_1110598.png





**Cone:**

- Description: *Picea* cones are pendulous. Their cones mature and usually shed in the same season.
- Image Source: Karren Wcisel, TreeTopics.com
- Image Date: August and February
- Image File Name: picea\_cone\_00.png



**Cone:**

- Description: *Abies* cones are erect on the branch.
- Image Source: USDA-NRCS PLANTS Database / Herman, D.E., et al. 1996. *North Dakota tree handbook*. USDA NRCS ND State Soil Conservation Committee; NDSU Extension and Western Area Power Administration, Bismarck.
- Image Date: Unknown
- Image File Name: abco\_003\_pvp.png



**Cone:**

- Description: The cone scales disintegrate as they mature leaving the upright central axis on the stem.
- Image Source: Karren Wcisel, TreeTopics.com
- Image Date: October 31, 2008
- Image File Name: abies\_cone\_1070570.png

**Cone:**

- Description: *Abies* cone scales after they have abscised from the cone.
- Image Source: Karren Wcisel, TreeTopics.com
- Image Date: November 2, 2008
- Image File Name: abies\_cone\_1070881.png