



# Project BudBurst

A National Phenology Network Field Campaign for Citizen Scientists



www.budburst.org

**Common Name:** Douglas-fir  
**Scientific Name:** *Pseudotsuga menziesii*  
**Plant Family:** Pinaceae



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## Phenological observation:

Budburst/First Leaf, Full Leaf, First Flower, Full Flower, End of Flower, Seed Dispersal

## Identifying Characteristics:

**Size:** Large coniferous evergreen tree with a broad, pointed pyramidal crown.

**Leaves:** Small, crowded, flat, straight evergreen needles that are spirally arranged, but can appear flattened in 2 rows due to twisting at the base. They are 2 to 3 cm (0.8 to 1.3 inches) long, pointed at the tip, but needles are flexible and soft to touch, dark yellowish green to blue-green in color and aromatic when crushed. Budburst is defined as when new needles are longer than the length of the old bud scales, full leaf is defined as when needles reach mature length.

**Buds:** One of the most easily identifiable features of Douglas-fir are the distinctive red pointed buds. This contrasts with the true firs (e.g. subalpine fir, grand fir, white fir) which have whitish to greenish round sticky buds.

**Flowers:** As a conifer Douglas-fir does not have true flowers. It produces male and female strobili (structures that produce spores) at the tip of branches on trees at least 12 to 15 years old. Male strobili are yellow to deep red located at branch tips and are about an inch long. Female strobili are approximately 3 cm (1.2 inches) long and green to deep red, they have large distinctive leaf-like bracts and occur along the sides of branch tips. First flower is defined as when you first see pollen on the male strobil, full flower is when > 50% of the branches have cones with pollen, and end flower is when you no longer see pollen on the cones.

**Fruit (Cones):** They are 8 to 10 cm (3 to 4 inches) long, ovoid-cylindrical cones that are pendant and green to reddish brown with semi-woody scales. A distinctive feature is the 3-pronged bract that extends beyond the scales (sometimes referred to as "the mouse tail")



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Seed dispersal is defined as when cone scales turn brown and expand outward. Dispersal generally occurs between mid August and late September depending on elevation and latitude.

**Bark:** On young trees, the bark is gray or ashy-brown and thin and smooth with distinctive resin blisters. As the tree matures, the color becomes more grayish-brown with deep and irregular ridges and fissures and develops distinctive thick bark, which can be many inches thick in older trees.

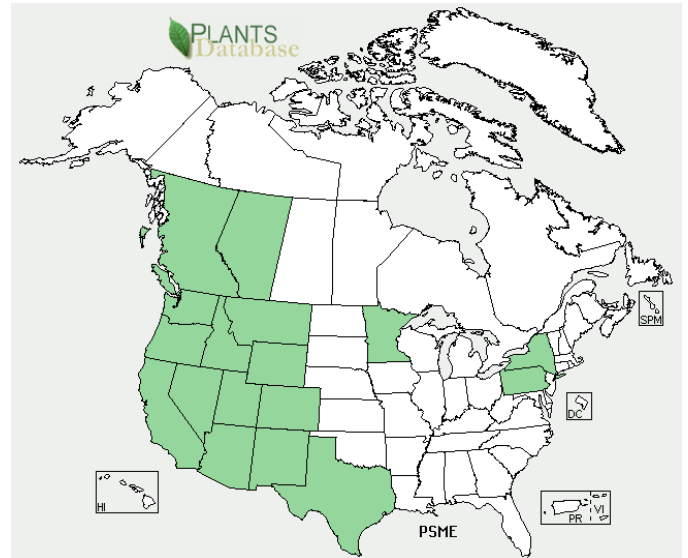
**Habitat:** Grows best in well drained, deep, moist soils, but can also exist in dry soils. Often in pure conifer forests or in transition zones with the forest; from dry grassy valleys to timberline.

**Bloom time:** Blooms (pollen disperses) in mid spring (March-April in southern range, May-June in Montana or at higher elevations).

Information sources:  
USDA ([plants.usda.gov/plantguide](http://plants.usda.gov/plantguide))

**Did you know?** Douglas-fir is the one of the most valuable lumber trees in the world. The wood is used as poles, beams, in bridges, as rail road ties, structural timber, in plywood, and to make furniture. It is found in many homes every December as a popular Christmas tree. Native Americans used the resin as an antiseptic in the treatment of burns, scrapes, and rashes. European explorers often placed young shoots in their boots to prevent athlete's foot and nail fungus. It is also one of the worlds tallest trees, commonly reaching over 76 meters (250 feet) high, (record is 100 meters or 330 feet high!) and can exceed 1,000 years of age.

## Distribution Area:



Map courtesy of USDA-NRCS PLANTS Database ([plants.usda.gov](http://plants.usda.gov))