

How to plan and plant a LIVING SNOW FENCE

A living snow fence can direct snow away from an area, provide protection from Wyoming winds

by Liz Harvey and Martin Curry

A correctly placed living snow fence (LSF) will direct snow and give your home protection from the wind, improve the aesthetics of your property, and reduce home energy consumption.

An LSF is a band of shrubs and trees perpendicular to the prevailing winds. Remember a few key points when designing an LSF. First, allow room for snowdrifts to accumulate (Figure 1). Plant the first row that will be hit by the wind 150 to 200 feet away from the area to be protected. Placing it closer could cause drifting on the area to be protected. Second, allow space for plants to mature. Generally, small shrubs should be planted 4 to 6 feet apart; medium shrubs and small evergreens 6 to 8 feet apart; and large trees 12 to 15 feet apart.

Draw a Rough Sketch

The first step is to draw a rough sketch of your property. Indicate the direction of prevailing winds, property lines, irrigation source, and the area to be protected. Next, determine how many rows to plant. The most common arrangement is three rows: one shrub row for the row that will be hit first by the wind, a medium evergreen row in the middle, and then a large evergreen row closest to the area to be protected. Other configurations work as well. See Figure 1 for an example. The more rows that are planted, the denser the snow fence will become, and, ultimately, the more protection provided.

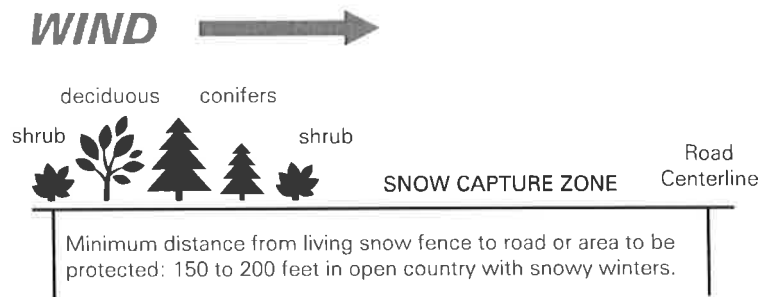


Figure 1

Select Your Trees

Pick trees that will be the most successful for your region. Several factors should be considered. Soil types (sandy, loamy, and clayey) and soil quality (pH, alkalinity, salinity, and nutrient availability) have a large impact on the success of trees and shrubs. Being aware of your soil characteristics will assist in determining which tree and shrub species is best adapted to the site and will have the best chance for survival. The Natural Resources Conservation Service (NRCS), conservation districts, the University of Wyoming Cooperative Extension Service, and UW Soil Testing Laboratory can assist in determining your soil type. It is also important to choose species that are either native to your area or a hardy non-native that will survive a Wyoming winter. Consider whether or not the species needs to be drought tolerant.

Preparing the Site

Stakeout the intended rows. Always call before you dig by dialing 811. The people at One Call of Wyoming will let you know if there are underground lines or wires that will need to be avoided. When planting seedling trees, it is best to "rip" the soil about 18 inches deep and 3 to 4 feet wide. For some, this is not possible due to lack of access to equipment. At the very minimum, roto-tilling to a depth of 6 to 8 inches will loosen the soil and make way for tree or shrub roots to establish and grow.

Next, place a fabric weed barrier over the rows; this will help trees survive by conserving moisture and controlling weeds. The weed barrier is pulled taut and then secured by using long staples on the edges and then burying the edges with soil. Start at one end, cut an X in the middle of the fabric (this is where you will dig your planting hole). Then measure from there the distance to the next tree and continue (Photo 1).

When planting seedling trees, dig a hole the depth and width of a shovel head (Photo 2). Dig until the shovel head fits snugly. Place the tree in the hole and, if planting a bare-rooted seedling, make sure roots all point down and spread out. If improperly planted, a tree root can curve back up to the surface (called a J-root, see Photo 3) and can kill your tree. Push the soil into the hole around the roots, firmly packing as you go (see Figure 2 below). Large air pockets around the roots can cause roots to dry out. (Photo 4)



Amend or Not to Amend

People often ask if the soil should be amended prior to planting seedlings. A soil amendment is any material added to a soil to improve its physical properties, such as water retention, water infiltration, drainage, aeration, and structure. The problem with amending soil for trees is that eventually their roots will grow beyond the organic or inorganic improvements that have been made, and they will have to live in the soil in which they are planted. Once the tree's roots spread through the good amended soil into the original soil, the tree may be stressed. Trees acclimated to their environment from the beginning do best. High-nitrate fertilizers can burn the roots of the trees and should not be applied the first three years.

Once planted, trees require careful attention the first few years. Water without overwatering. Irrigation will be discussed further in an upcoming issue. Species such as pine and juniper can easily be overwatered. Irrigation and drip systems can efficiently deliver a measured amount of water to each tree. Drip systems use emitters that deliver 1 to 2 gallons per hour. Your local conservation district is a good resource for helping design a watering system and showing how much to water the trees.

Protect Against Wildlife

Wildlife can harm seedling trees. Deer, antelope, gophers, rabbits, and even livestock can make a meal of newly planted trees (Photo 5). Some precautions include putting a fence around the tree rows, using tubes, or using a repellent. Tree protectors (Photo 6) and tubes can help protect seedling trees from wind. These can be

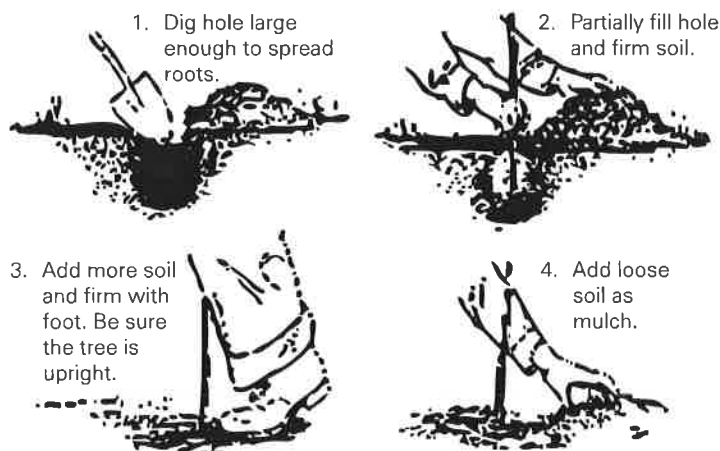
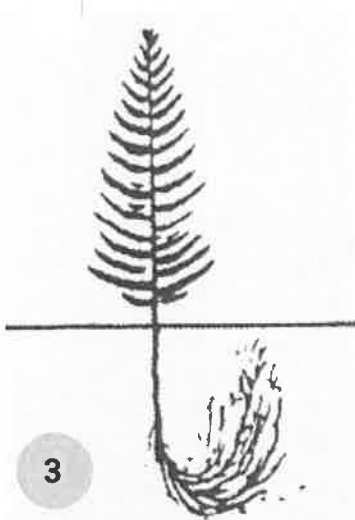
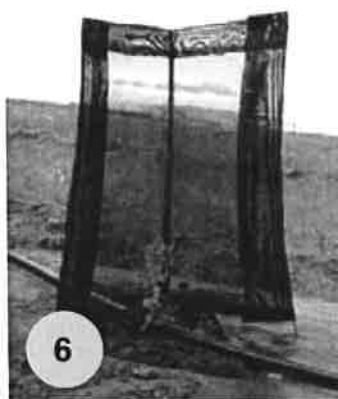


Figure 2: <http://www.extension.umn.edu/distribution/naturalresources/components/DD0505a.html>



purchased from Forestry Suppliers, Ben Meadows, or your local conservation district.

To protect conifers and broadleaf evergreens, use an anti-transpirant, available at your local weed and pest control district and some conservation district offices. Anti-transpirants, sprayed over the tree usually in March and November, seal in moisture and create a barrier that will help protect the tree from becoming wind burned.



Growing trees in Wyoming is always a challenge. With a little planning and a lot of care, your living snow fence can be successful. The benefits go far beyond beauty and summer shade.

Good luck and happy planning/planting!

Liz Harvey is the administrative assistant and Martin Curry is the resource specialist with the Laramie Rivers Conservation District in Laramie. Harvey can be reached at liz.harvey@wy.nacdnet.net and Curry at martin.curry@wy.nacdnet.net. Both can be contacted at (307) 721-0072.

Trade or brand names used in this publication are used only for the purpose of educational information. The information given herein is supplied with the understanding that no discrimination is intended, and no endorsement information of products by the University of Wyoming Cooperative Extension Service is implied. Nor does it imply approval of products to the exclusion of others that may also be suitable.

For more information

- Wyoming conservation districts – <http://www.conservewy.com/DISTRICTS.htm>
- Natural Resources Conservation Service Wyoming offices – www.wy.nrcs.usda.gov/wymaps/wycomap.html
- Wyoming State Forestry Division – <http://slf-web.state.wy.us/forestry.aspx>
- UW Cooperative Extension Service county information – <http://ces.uwyo.edu/Counties.asp>;
- UW Soil Testing Laboratory – http://ces.uwyo.edu/Soil_Main.asp

Publications

- See "Reducing deer and rabbit damage to woody plants," Spring 2008 *Barnyards & Backyards* magazine for more info on protecting trees from wildlife <http://www.uwyo.edu/barnbackyard/info.asp?p=10291>
- *Trees for Conservation – a buyer's guide* is a publication from the Colorado State Forest Service that provides information to select your tree and shrub species for a living snow fence and is available at csfs.colostate.edu/pdfs/08byrgd-www.pdf
- *Windbreaks for Snow Management*, EC1770, is a publication from the University of Nebraska at <http://www.ianrpubs.unl.edu/epublic/live/ec1770/build/ec1770.pdf>
- "Getting the straight dirt: How to test the health of your soil" (Spring 2006 *Barnyards & Backyards*). Go to barnyardsandbackyards.com, click on Resources, then Soils & Fertilization

Size: Colorado blue spruce often reach a height of 60 to 70 feet (18 to 21 m). The national champion in the Ashley National Forest in Utah is 186 inches (472 cm) in circumference, 122 feet (37 m) tall, and has a crown spread of 36 feet (11 m). In South Dakota, our champion Colorado blue spruce is growing near Bryant. It is 76 inches (193 cm) in circumference, 61 feet (19 m) tall and has a crown spread of 34 feet (10 m).

Significance

In South Dakota, and other places it is planted, Colorado blue spruce is primarily used as a windbreak and ornamental tree, it is often selected for its blue color that comes from the powdery, waxy layer on the needles. This characteristic is under genetic control so the intensity of blue is determined largely by the seed source. The blue coloring is not affected by how you care for the tree.

Publication of the *Colorado Blue Spruce* fact sheet was funded by the S.D. Department of Agriculture, Division of Forestry, Pierre, SD.



COLORADO BLUE SPRUCE

(Picea pungens)

Description

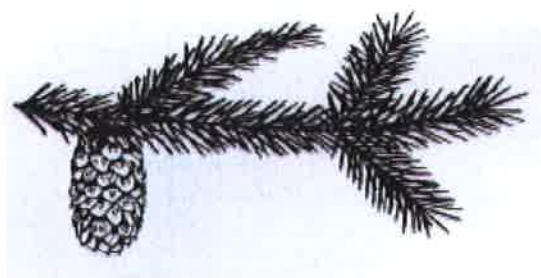
Picea is the Latin name for the pine, spruce or fir, from the Greek *pissa*. *Pungens* is from *pungere*, the Latin word "to sting." The needles of the blue spruce are very sharp pointed. Another common name is Colorado spruce. The Navajo call it *ch'o deeni'nii*. The Lakota did not have a name for Colorado blue spruce since it was not found on the prairie.



The Colorado blue spruce is a member of Pinaceae, the pine family, along with ponderosa pine (*Pinus ponderosa*) and Black Hills spruce (*Picea glauca* var. *Densata*). The leaves are evergreen, 3/4 to 1 1/4 inches (2 to 3 cm) long, 4-sided needles that are dull green to silvery-blue. Cones are orange (male) or greenish (female). The mature female cone is cylindrical and 2 to 4 inches (5 to 10 cm) long with papery scales. Blue spruce pollen is wind borne. Twigs become orange-brown with age. The bark is gray and composed of thin, loosely attached scales.

Distribution

Colorado blue spruce is native from northwestern Wyoming and eastern Idaho to Arizona and New Mexico. It is found at elevations between 6,000 and 9,000 feet (183 to 274 km). While Colorado blue spruce has been planted throughout South Dakota, its best growth is in the eastern part of the state. The best sites are moist, sunny locations. Colorado blue spruce is not shade tolerant. The tree does do better in dry soils than most spruce, however.



Natural History

Colorado blue spruce is afflicted by a number of diseases and insects. Probably the most serious disease problem is cytospora canker. This fungus disease lives in the trunk and branches of many species of spruce, including Colorado blue spruce. The disease causes the mortality of the lower branches and gradually works its way up the tree. While this is the most serious problem of Colorado blue spruce, this tree is also affected by several needle diseases like pine needle scale and insects such as the white pine weevil. When planted as windbreaks, the Colorado blue spruce is also very susceptible to herbicides.

Life Span: Colorado blue spruce can live 200 years or more. Since it has only been planted for about 100 years in South Dakota, its maximum life span in our state is not yet known. Its useful life span as a windbreak or ornamental tree is about 40 to 60 years, beyond that it begins to deteriorate.