



Living Snow Fence Maintenance

Living snow fences require care and monitoring for several years after planting. The length and type of care varies based on the plant species, site conditions, and the quality of site preparation. Once plants are well established and have achieved sufficient height growth, care and monitoring can be reduced or eliminated. Plants of the same age and height are needed for effective and continuous snow control along the roadway. Monitoring of snow fences is essential so that problems with dead or slow-growing plants are quickly identified and solutions can be developed and enacted. Some potential problems to watch for and potential solutions for addressing them are listed below.

Weeds and Competing Vegetation

Competition from weeds and other vegetation is often the primary threat to the establishment and optimal growth of newly planted living snow fences. Weeds must be monitored and controlled for two to three years after planting, to reduce competition for water, sunlight, and nutrients. Proper site preparation is the first step to stopping weeds from encroaching on the planting strip. This includes the use of herbicides, tilling, establishing mowed strips on either side of the fence, landscape fabric, and mulch as described in fact sheets #5 "Site Preparation", and #6 "Planting" of this series. After planting, maintaining 8 ft. wide mowed strips on either side of the fence is the first line of defense against weed encroachment (Figure 1). These strips should be mowed at least three times per season.

One of the most effective preventive practices for weed control is using a consistent three inch layer of clean wood mulch across the entire planting strip. Wood mulch should be fresh; have a coarse grind; and be free of all soil, weeds, grass, plant parts, etc. Dirty, composted, or shredded wood mulch will allow weeds to germinate in the planting strip and should be rejected. Using adequate amounts of clean mulch will greatly reduce the amount of maintenance needed in the first few years after planting.

Weeds and other vegetation may become established on the planting strip despite the best site preparation techniques. If a high percentage of weeds (>25 percent of ground cover) become established on the planting strip before the snow fence is well established, further weed control efforts should be undertaken. This may include a combination of using brush mowers, herbicides, hand weeding, or more mulch. Extreme care must be taken when controlling weeds on the planting strip after the fence is installed. Mechanical controls must not damage plant stems or roots. Herbicides must be carefully selected to target only weeds and not the snow fence species. Consult your local herbicide and environmental specialist to develop and implement a weed control plan if a high percentage of weeds become established any time in the first three years after planting.

Wildlife

Browse damage from wildlife is a common challenge with roadside vegetation including living snow fences. Local wildlife patterns, palatability of selected species, and abundance of other preferred food sources should be considered during the site assessment and design phases. Heavy browse can kill plants or severely slow down establishment if it is not promptly addressed. Deer and other species will browse on young shoots of nearly every species recommended for living snow fences (see Living Snow

Living Snow Fences

Fact Sheet Series - Fact Sheet #7

Living Snow Fence Maintenance



State University of New York
College of Environmental Science and Forestry

Fence Species Matrix at www.esf.edu/willow). Long strips of palatable browse in the form of a living snow fence can provide an optimal food source, especially if browsers are not discouraged in any way. Maintaining mowed strips 8 feet or wider can reduce the amount of cover and habitat for browsers and discourage their presence. Shrubs and evergreen trees can be sprayed with natural deer repellent (Figure 1) which works well in preventing browse. Temporary fences can be established around young plants in cases of extreme browse. These measures can temporarily deter browsing long enough for fences to reach heights at which they will be less susceptible to browse.



Figure 1- Maintaining 8+ feet wide mowed strips on either side of the fence, and regularly applying deer repellent to the fence were effective weed and browse controls on this 1 year old shrub-willow snow fence on Route 10 in Beerston, NY. Photo by SUNY ESF

Weather Damage

As in nature, occasional disturbances to trees and plants from weather events are inevitable. Wind, hail, drought, flooding, ice storms, thunderstorms, snow deposition, freeze/thaw cycles, and other adverse weather conditions can damage or kill living snow fences, especially when they are young. Monitor new installations for weather damage, especially after severe weather events. Weather is uncontrollable and often unpredictable, but plants can sometimes be protected before severe weather and rehabilitated or quickly replanted after a severe weather event.

Living Snow Fences

Fact Sheet Series - Fact Sheet #7

Living Snow Fence Maintenance



State University of New York
College of Environmental Science and Forestry

Pests & Diseases

Living snow fences are organisms in nature, susceptible to parasites and other biological disturbances. Insects, fungus, viruses, and other pests can severely damage and kill plants. Planting disease resistant species is the best approach to this challenge. A keen eye and knowledge of plant pathology, entomology, and vegetation management may be necessary to properly identify and mitigate pest and disease problems. If a suspected pest problem is encountered, consult your local environmental specialist for advice on how to best manage the problem. For shrub-willow fences, Cornell University has produced a series of fact sheets on the most common pests and diseases that is available online at http://willow.cals.cornell.edu/Resources/fact_sheets.html



Cytospora canker found on an 8 year old shrub-willow living snow fence along Interstate-81 in Preble, NY
Photo by SUNY ESF

Maintenance

In addition to monitoring and mitigating stressors described above during the early stages of plant establishment, some standard maintenance is usually required for living snow fences to achieve optimal growth rates. As with monitoring for disturbances, once plants become established maintenance needs are reduced or eliminated. Standard maintenance considerations are described below.

Irrigation

Living snow fences planted using rooted stock should be provided with adequate water during the installation process, immediately after, and periodically over the first growing season in the absence of regular rainfall. Irrigation is generally not necessary in the case of shrub-willow snow fences, except in cases of extreme drought shortly after planting.



State University of New York
College of Environmental Science and Forestry

Replanting

Even with the best planning, site preparation, planting techniques, and growing conditions, 100 percent plant survival is unlikely. Replanting deceased or severely lagging plants in the first three growing seasons should be considered a routine maintenance task that is included in the initial plans and budget of a snow fence installation. Gaps in the fence created by lagging or deceased plants will decrease functionality and create channelized winds and drifting. It is important to replace deceased plants as quickly as possible to maintain an even-aged fence. Monitoring the fence regularly and replacing die-off as soon as possible is an important maintenance routine in the first three growing seasons. If dieback is observed early in the growing season, fences can be replanted that year. If dieback occurs later in the year, plan to replant any failed sections in the early spring of the second growing season.

Fertilizer

Fertilizers are generally applied in the site preparation phases or in the late spring of the second growing season. Fertilization may not be necessary and should be done selectively based on laboratory analysis of soil chemical properties that are tested during the site assessment phase (see Fact Sheet #3 in this series). Slow release fertilizers can be applied to the planting strip as a top-dressing to ensure optimal growth rates. Before applying fertilizers, be sure to verify that the installation site is not in an environmentally sensitive watershed where fertilizer use is regulated.

Coppicing

For shrub-willows and other coppice species, coppicing after the first year of growth is recommended to promote the re-growth of more stems, which results in lower optical porosity and increased effectiveness of the snow fence. Cut stems back during the dormant season (after leaf-fall) to a height of approximately 4-6 inches using a brush saw, sickle bar mower, or other mechanical cutting device that makes a clean cut and does not rip the plant's root system out of the ground. If possible, cut the plant above the point where new side branches attach to the main stem. This will encourage more sprouting from the side branches. If side branching begins higher up on the plant, the cut may be made up to 12 inches above the ground to maintain the side branches, but no higher. Coppicing is recommended in the fall as opposed to the spring, as heavy snow loads in the first winter can detach tender stems from the stump.

Additional Resources

Gullickson, D., Josiah, S.J., Flynn, P., 1999. *Catching snow with living snow fences*. University of Minnesota.

Tabler, R.D. 2003. *Controlling blowing and drifting snow with snow fences and road design*. Tabler and Associates. Niwot, CO.

Abrahamson et al. 2010. *Shrub willow biomass producers handbook*. SUNY ESF.

<http://www.esf.edu/willow/documents/ProducersHandbook.pdf>

Fact Sheet prepared for NYSDOT by Justin P. Heavey and Timothy A. Volk, SUNY-ESF.

© 2013 Research Foundation for the State University of New York College of Environmental Science and Forestry

www.esf.edu/willow