



## Low Snow Cover – Blessing or Curse?

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While the lack of snow might be good for us drivers, it can pose serious problems for plants and animals. Connecticut averages about 37 inches of snow each year but since January 1, Hartford has only gotten 2.3 inches although winter is far from over.

Snow acts as a blanket insulating the ground from temperature swings. The seasonal habitat created between the top of the snow layer and the soil beneath it is known as the subnivium. The snow holds the heat radiating from the ground so beneath the snow the temperatures are generally warmer than ambient air and there are no chilling winds creating good survival conditions for plants, microbes, insects, reptiles, amphibians and even mammals like voles and woodchucks.

For certain species of reptiles and amphibians that survive the winter in a frozen torpor, the fluctuating temperatures experienced when there is little or no snow cover can bring them out of their winter dormancy early and risk exposure to inclement weather and lack of food. Some insect species go through phases of freeze tolerance and may or may not be an available food source for migrating birds without a more consistent snow cover. While they aren't gardeners' favorites, woodchucks, which are true hibernators in their underground dens, are exposed to colder temperatures when an insulating blanket of snow is absent and may have greater metabolic demands during frigid periods or wake up earlier with unseasonably warm temperatures only to not find enough food.



Plants are adversely affected by lack of snow cover as well. You probably remember that freezing Friday into Saturday a few weeks ago with wind chill factors hitting 30 degrees F below zero. Those extremely frigid temperatures penetrate further into the ground in areas without snow cover and can damage plant roots.

Another way plant roots are damaged is with bouts of rain combined with fluctuations of temperatures. The repetitive freezing and thawing of soils will cause more shallow rooted plants or those planted later last fall to get heaved out of the soil. This can also injure stems of established shrubs and roots of established trees and can alter our forested ecosystems as well as domestic shrub plantings.

Despite the fact that 3.6 million people living on 3.2 million acres makes Connecticut one of the most densely populated states, we still have 1.8 million acres of forests providing habitat for many plant and animal species, fall color, recreational opportunities as well as essential ecosystem services including carbon sequestration and impacts on air and water quality. Damage to forest tree roots affects the tree's ability to grow, to uptake water and nutrients like nitrogen, and to store carbon. This added stress may cause more damage to our forests from diseases, insects and summer droughts.



Records indicate that since 1900, temperatures in Connecticut have increased by 2.2 degrees F. While this doesn't sound like much, it has resulted in increasing amounts of both precipitation and humidity because warmer air holds more moisture. These warmer temperatures are resulting in buds of certain plants opening 10 to 14 days earlier than in years past. Not only may this affect natural timings with pollinators but according to UConn Plant Science Professor Mark Brand, earlier bud break sets itself up for potential frost damage if temperatures plummet after buds are expanding.

Unless we have those plummeting temperatures, Dr. Brand assures us that plants, like our fruit trees, should have received enough chilling hours (accumulating on days between 32 to 50 degrees F) to fulfill their cultural requirements and expand their flower buds in anticipation of pollination. That is of course, if the deer don't find them first. Dr. Brand has noted increased browsing damage in more open winters as the deer can move more freely.

Once plants complete their chilling requirements, they are in an eco-dormancy state and subject to environmental conditions. Warmer than normal temperatures can stimulate them to begin new growth regardless of the time of year. UConn Plant Science Professor Dr. Julia Kuzovkina notes that low temperatures that may not cause plant injury in midwinter can be damaging in spring when late season spring freezes occur and the new growth is not hardened off.

Since winter is not over and we do not know what to expect before spring arrives, Dr. Kuzovkina advises to look for other winter injuries to plants such as winter burn when plant foliage browns out due to desiccation, sunscald on young or thinned barked trees and frost cracks that occur when water enters in trunk crevices and when frozen expansion exceeds the strength of the wood. She also notes that one positive effect of low or no snow cover would be less snow mold on lawns.

As snow cover in the Northeast is diminishing, changes to our plant communities are unfortunately inevitable. Look for reduction in biodiversity as natural ecosystems are becoming less resilient in their ability to recover from natural or manmade disturbances but also as invasive plant species, like burning bush, barberry, and garlic mustard are favored with warming temperatures and lack of reliable snow cover.

Come visit us at the CT Flower and Garden Show this weekend. Bring your gardening questions to be answered by UConn staff or Master Gardeners and a half cup of soil to be tested for pH for free by staff at the UConn Soil Nutrient Analysis Testing Lab. For all your gardening questions, contact the UConn Home & Garden Education at (877) 486-6271 or [www.homegarden.cahnrc.uconn.edu](http://www.homegarden.cahnrc.uconn.edu) or your local Cooperative Extension Center.