Pest Update (March 15-22, 2017)

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Note: samples containing living tissue may only be accepted from South Dakota. Please do not send samples of dying plants or insects from other states. If you live outside of South Dakota and have a question, instead please send a digital picture of the pest or problem.

Available on the net at:
http://sdda.sd.gov/conservation-forestry/forest-health/tree-pest-alerts/

Any treatment recommendations, including those identifying specific pesticides, are for the convenience of the reader. Pesticides mentioned in this publication are generally those that are most commonly available to the public in South Dakota and the inclusion of a product shall not be taken as an endorsement or the exclusion a criticism regarding effectiveness. Please read and follow all label instructions and the label is the final authority for a product's use on a particular pest or plant. Products requiring a commercial pesticide license are occasionally mentioned if there are limited options available. These products will be identified as such but it is the reader's responsibility to determine if they can legally apply any products identified in this publication.

Timely Topics
Our temperature roller coaster and tree injury..... 1
Oh Deer and Meyer spruce..... 3
E-samples
Pine needle scale and mugo pine..... 4
Clearwing ash borer..... 4
Samples received / site visits
Minnehaha / Hutchison Counties (declining spruce)..... 5

Timely Topics

Our temperature roller coaster and tree injury. Our slide into spring has become more of a roller coaster as temperatures swing from a mild (almost warm) February to the bone-chilling cold of March. Brookings had a mid-February two week streak of daytime highs in the 40s to 60s with nighttime lows in the 20s and 30s. This was in sharp contrast to the weather experience last week with highs in the teens and lows in the single digits to negatives.

While these recent cold days are not unusual, they were almost intolerable after a couple of weeks of warm weather. At least we could move inside. Not so with many of our ornamental trees and shrubs and the change in temperatures was harder on them.

Woody plants prepare for winter, not by buying parkas and gloves, but through a process of cold acclimation, generally known as hardening. This process begins in early fall in response to the shortening days and episodes of frost. Gradually over the fall plants harden to tolerate increasingly colder temperature with many adjusting to survive -30 to -40 by mid-December.

A reverse process, deacclimation, occurs in late winter and spring with the tree or shrub losing its tolerance to cold as it prepares to resume growth. The loss of this tolerance is gradual with a tree's capability to tolerant colder temperatures decreasing till even a light spring frost can result in injury. However, deacclimation occurs faster than acclimation and cold tolerance that takes weeks or months to develop can be lost over days or week.

While we can quickly adjust to this cold by trading T-shirts for jackets, woody plants cannot easily regain tolerance once lost. The process of returning to a pre-deacclimation level of hardiness, reacclimation, is not always possible nor rarely as deep.

The challenge of growing woody plants on the Northern Plains is not that we have cold winter. It's that our temperature fluctuations in the fall and spring interfere with the process of acclimating and deacclimating for many of our ornamental plants.

Our native plants can handle this, they have been here for thousands of years and they know it can snow in May. Look at a bur oak. It's not waking up yet and does not plan to until May. Not so with our Norway maples that have their wake up alarm set for the weather in Paris, not Presho. These trees are frequently surprised by our cold March weather.

A good reason for delaying your dormant pruning of many of our marginally hardy trees and shrubs (including fruit trees) is to prune away any shoots killed by the winter before proceeding with any structural pruning. You can get an idea of what died during this winter by slicing into the shoots (last year's growth) and

observing the tissue just beneath the bark. You will need to wait until we have several days of warm temperatures but this weather should occur later in the week. If the inner bark is dark brown that is an indication of freeze injury. If the wood is streaked brown, rather than a light green, that indicates the freeze injury has extended even deeper into the tree.

On some plants you don't even need to go that far. The tender expanding buds are already turning black on shoots that were affected by the cold weather. The above picture shows the newly expanding leaves of a falsespirea (*Sorbaria sorbifolia*) with freeze injury.

Oh Deer and Meyer spruce. I spoke at the Conservation District Tree & Garden Clinic last Saturday. It was a great crowd and lots of good questions. One in particular that I got was regarding Meyer spruce (*Picea meyeri*). This is one of my favorite spruce (though in general not particularly fond of spruce as they are not well-adapted to our hot summers). The problem this tree owner was experiencing with her Meyer spruce was that they were looking like toadstools – short and rounded, rather than tall and pyramidal.

Meyer spruce has a lot going for it. The tree does not seem to be affected by the two common foliage disease, *Rhizosphaera* or *Stigmina*. I do occasionally see these pathogens, but usually the infection is limited to the older needles, 4th or 5th year, rather than the 2nd year needles infected which is common with Colorado (blue) spruce (*Picea pungens*). They do not seem to be as drought-tolerant as some other spruce but drought-tolerance is not a common characteristic of spruce.

However, I have noticed a little more deer browsing on Meyer spruce compared to Colorado. I have been watching a row of Meyer spruce out near Highmore that have remained about 3 feet tall for the past decade. They are adjacent to a thick, wooded area, perfect habitat for deer and the deer browse the tips of these trees back every year.

E-samples

A "white" pine. Here is a great picture of a 'flocked' mugo pine. The pine needle scale (*Chionaspis pinifoliae*) is so thick on the needles that it appears as Christmas flocking. Pine needle scale, also called white scale, is an armored scale, one that forms a hard, waxy covering over their body. The eggs overwinter beneath mom's shell and hatch occurs about the time common lilacs are in bloom. The mobile immatures, called crawlers, move out to the new needles, settle down, insert a "beak" into the needle and begin to suck out sap. The crawlers lose their legs and develop a hard shell (at least the females, the males develop wings and fly). The eggs are laid under mom and then she dies. This is completed by mid to late July and we usually see a second generation in late summer.

The female's dried shell remains on the needle for years so it always looks like a bigger problem than what it really is. The natural enemies of the scale generally keeps the scale population in check so treatments are not always needed.

Is this emerald ash borer? This is a larvae found in a dying ash tree that was cut own recently. The tree owners were concerned that this "worm" was the emerald ash borer. Fortunately, no. This is our native clearwing ash borer (*Podosesia syringae*). These are common insect in dying ash, particularly trees that are less than 8 inches in diameter. The clearwing ash borer larvae reach about 1 inch in length, they are cream colored with a brown head and there are three pair of short legs near the head and several pairs of prolegs, leg-like appendages, on the abdomen.

Emerald ash borer larvae are slender, with bell-shaped segments and have no legs. The tree injury between these two pests differs as well. Here is a picture of a tree infested by emerald ash borer taken over by Rochester, Minnesota. You can see the 'blonding' as the woodpeckers strip away the bark to feed on the larvae beneath it. Since emerald ash borer larvae feeds just beneath the bark it is easy prey for the woodpeckers. Our native clearwing ash borer feed deeper within the tree so are usually beyond reach of the woodpecker.

Samples received/site visits

Minnehaha County **Why are the needles on the tips of my spruce turning brown and falling off?**

This was a common call last week and all reported similar symptoms; 1) the symptoms appear in the last few weeks; 2) the needles at the tips of the branches were turning a rusty brown to purplish brown and falling, 3) sometimes only a part of the tree was affected and one tree might present symptoms but another tree in the yard look fine.

I stopped by to look at one of these trees and it appear that winter desiccation injury is to blame for these symptoms. Colorado spruce is sensitive to this type of injury and our recent warm spell allowed foliage to dry out quickly. The other common factor was that all the properties were in areas that were dry last fall and either the tree owner did not water or just added a little water before the soil froze.

There is not much that can be done at this time, the damage has already occurred. But it is a good reminder that if we have a dry summer and fall, spruce owners may want to water their trees during September to protect the trees from desiccation injury next winter.

Hutchinson County **Needles turning brown and falling**

However, this does not mean desiccation can be the only agent involved in the loss of needles. A sample submitted by Nathan, one of the Department of Agriculture's foresters from spruce in Hutchinson County showed SNEED, Sudden Needle Drop, which is associated with the pathogen *Setomelanomman holmii.* The shoots were peppered with the black fruiting bodies of the fungus.

This is a fungal pathogen that seems to come and go. I have a few years where many samples are identified with the pathogen and then an equal number of years where I see very few. The pathogen can also be found on trees that are not presenting any symptoms of yellowing and browning of the older needles so clearly it is not the sole, or perhaps even the most important reason for needle discoloration and shedding.

I noticed there were a number of shoots that presented stunted needles in 2015, an indication of a stress episode at least a year ago. Also on many shoots that were included in the bagged sample the newest foliage was shedding, not the oldest. I usually associate this with environmental stresses (see the sample for Minnehaha County) rather than pathogens. I will stop by and look at the trees on site as I think there is more than SNEED at work here.

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