

# Pest Update (May 24, 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.

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## Plant development for the growing season

The pagoda dogwoods are beginning to bloom in Brookings. They have bloomed as early as the middle of May to as late as the middle of June depending on the spring weather. This year we are still a little ahead of the average time but the cold weather (and snow!) this past weekend probably is going to stall flowering for just a bit.

## Treatments to do now



Now that buckeyes are blooming, bronze birch borers are emerging from infested trees. **Bronze birch borer** (*Agrilus anxius*) is a native insect that attacks birch. It is a close relative to the emerald ash borer so they both make a D-shaped hole as the adult emerges from the tree. The time to treat birch trees is now as the female beetles are finding places on the bark (usually near a branch union) to lay their eggs. The bark can be sprayed with an insecticide containing permethrin as the active ingredient with a second application in



about three weeks. Insecticides containing imidacloprid can also be used as a soil drench in the fall to kill newly hatched larvae the following year so it's too late now for these treatments to be effective. If the canopy has dieback back more than about 40% the tree too far gone for treatments.

Bronze birch borers colonize almost every birch species with their favorites being Asian and European species such as the cutleaf European white birch. The river birch is very, very rarely attacked by bronze birch borer and can be considered a borer-free alternative to other species.

## Cedar-apple rust galls on the junipers have expanded during the past week and



the horns are developing. This is an indicator to begin treatments to protect susceptible apples and crabapples from cedar-apple rust. The galls form on the junipers (cedars) and release spores that infect the apples and crabapples. The infection on apples and crabapples results in discolored foliage and fruit and premature drop of the leaves. Fungicides containing Myclobutanil as the active ingredients can be applied beginning

now and repeat three more times at 7 to 10 day intervals. Captan, a common fungicide for apple scab is NOT effective against cedar-apple rust.



**Codling moth** adults are flying and laying eggs on the newly forming apples. Once the larvae hatch, they will burrow into the developing apple, usually near the base of the fruit, resulting in a trail of brown, powdery frass through the apple. This frass often extrudes from the entry hole as in the picture to the left. The treatment is usually Malathion, though there is much evidence that

carbaryl (Sevin) provides better control. The first treatment begins about 10 to 20 days after petal fall, as the fruit just begins to form and then three more applications spaced about 10 days apart. This treatment will also control **plum curculio**, an insect that cannot usually get through the tough skin of an apple but the egg laying leaves the fruit dimpled and distorted. The picture to the right shows bird pecks (the large hole) and plum curculio damage (the dimples).



The other option is **bagging the individual apples** using the Japanese fruit bags when the apples reach about ½-inch diameter. This is no guarantee of control as the fruit may become infested before that size but they do provide reasonable control of this pest and many others as well as improve the shine to the fruit.

And finally, if you want to hang jugs of bad smelling liquid to attract codling moths and repel unwanted visitors at the same time consider mixing **molasses and water** in a 1:7 solution with a few drops of dishwashing soap. Pour this solution into a one-gallon milk jug with the top cut out of it and hang from the tree. The fermenting mix is attractive to codling moths (as well as wasps and critters) and they *may* prefer this to your apples. It also creates a mess if you bump the bucket while mowing your lawn.....



**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 immature, 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).

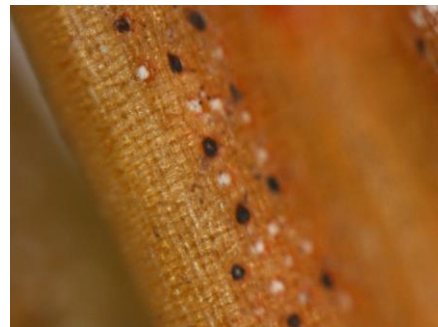
The eggs are laid under mom and then she dies. This is completed by mid to late July and we usually see a second generation in late summer.

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. If treatment is necessary use 2% horticultural oil or insecticidal soap as these do little harm to the natural enemies of scales (however, read and follow label directions and precautions carefully as a misapplication can cause needle discoloration. Insecticides containing acephate are also effective, but harm natural enemies. Applications should be made now with a second application mid-July.



The new shoots are expanding on spruce so it's time to apply a fungicide to protect against **rhizosphaera** or **stigmina needlecast**. These are the most common foliage diseases of blue spruce. These diseases causes the older foliage to turn yellow by midsummer and then purplish-brown. Usually small black fruit bodies can be found in the spring lining the stomata along the needles. Stigmina needlecast fruiting bodies have fuzzy

edges (as pictured above) while rhizosphaera fruiting bodies are smooth (as pictured to the right). The disease results in premature needle drop and a thin and discolored canopy. The disease can be managed by an application of chlorothalonil now and a second application in about two weeks. If the needlecast is due to Stigmina the applications may have to continue every 10-days till August. It is important to treat the entire canopy, not just the lower branches when treating for Stigmina.



## Timely Topics



### **Calls on spruce winter desiccation injury continue**

“Why are the needles on my spruce tree turning color?” This is the most common phone call this past week. This question is generally quick follow by; “What can I spray?” The most common reason for these symptoms is winter desiccation injury and, of course, there is nothing you can spray.



Spruce needles turn color for a number of reasons. The older foliage turning purple-brown is often due to a needlecast disease. Purplish needles can also occur on poorly drained soils (picture to the left). Usually with needlecast diseases, the second year needles are turning purple and for wet soils, you'll notice the newest needles turning color and shedding and the older ones a normal green. If the newest needles are becoming discolored, usually a rusty-brown, often with a definite line on the needle with the tips almost a brown to black, this can be blamed on the winter.

It's hard to convince people that this was a hard winter. The mild February weather seemed nice for people, but it was tough on plants, particularly evergreens. The combination of dry, frozen soils and sunny, warm days caused the trees to lose moisture. Many of the trees were already moisture stressed due to the dry fall.

Even though the damage occurred back in the winter, the symptoms do not appear until spring as the plants begin to break dormancy. Even the discarded Christmas trees did not start turning brown until April and they have been dead since last October or November.

There is not much that can be done at this point. If the trees are budding normally, the new growth might mask the browning and the tree recover. However, if most of the needles are brown then the tree may be so stressed that even the new growth this spring will not provide enough food for the tree to survive.

### **North Dakota elm dying**



Last week I endured a couple of days of 92°F (and humidity) in Washington D.C. The large trees around the Capitol provided some much appreciated shade and an opportunity to see some familiar trees as well as one not commonly found on the Northern Plains. I stopped to look at one very large

American elm that was showing symptoms of Dutch elm disease, yellowing and wilting leaves, symptoms usually described as flagging. Generally we do not see these symptoms until June, but Washington is about a month ahead of us in plant development.



Symptoms alone are not enough to positively identify the pathogen, but flagging is very characteristic of the disease. If I had climbed the tree to collect a sample (surely an action that the Capitol police would have taken note of) I might have found the tell-tale green streaking on the sapwood from the

disease. The streaking is diagnostic and if flagging of the leaves and streaking in the shoots supporting these leaves is found, the tree most likely has Dutch elm disease.

While dying elms are a common sight in the Dakotas, what made this tree noteworthy is the elm is the North Dakota Commemoration tree at the Capitol. The American elm was brought from North Dakota and planted in 1950s to commemorate the 50<sup>th</sup> Anniversary of the National Reclamation Act. I could not find a South Dakota tree on Capitol Hills. Ours might have died sooner.



## E-samples



**Ash anthracnose is showing up across the eastern half of the state** and with all the concern in the news about emerald ash borer, it seems everyone is noticing anything wrong with their ash trees! This is a common fungal disease of ash and some years the disease can result in a tree almost defoliated by the middle of June. I have already seen ash trees with most of their leaves lying on the grass beneath them due to this disease. The common

symptoms of ash anthracnose are blotches and distortions to the newly expanding leaves and the leaflets will often become distorted and have a slight curl. The infected leaflets will fall individually rather than as the whole leaf leaving the canopy looking patchy and sparse. Usually the tree produces a second crop of leaves by the end of June so the problem is short-lasting though this is a stress on the tree. The disease overwinters on the twigs and spreads to the leaves as they are expanding so the control time period has already passed and since the disease is such a minor threat to the tree generally no control is recommended.



**Emerald ash borer – NOT.** This spring I am receiving many calls about emerald ash borers in trees. The heightened concern about this insect now that it is established in Omaha has resulted in tree owners paying closer attention to their ash. The problem on the Northern Plains is that most of our ash look bad anyway. Between droughts, cold, heat, our native borers and disease about one in three ash in the state look like they are dying (or are dying). Many of

these declining trees have oval-shape holes along the trunk. The holes are about the size of an emerald ash borer emergence hole, about 1/8-inch across, but the holes created by emerald ash borers exiting the tree are a very crisp D-shaped, not quite what is seen in the picture. The oval holes that are about 1/8-inch across are made by the redheaded and banded ash borers as they exit the tree. These are native insects that colonize dying ash.



**Engraver beetles in the Black Hills.** While the mountain pine beetle epidemic has ended, that does not mean the end of bark beetles in the Black Hills. First, mountain pine beetle did not disappear. It is just the population has decline to the point where mass attacks on healthy trees are uncommon. However, uncommon does not mean they cannot still occur. We will still find an occasional landowner that has pockets of infested trees, particularly if the stand is dense.

Two other bark beetles we will always find, the engraver beetles and the turpentine beetle. There are two species of engraver beetles in the Black Hills, *Ips pini* and *Ips calligraphis*. They generally attack stressed pines or even green (fresh) slash. *Ips calligraphis* is the slightly larger one of the two engraver beetle with the adults about 5 mm long (as can be seen from the ruler scale), about 1/5 inch. These beetles can sometimes swarm around a fresh firewood pile as they are attracted to the odor given

off by greenery. They also can make a chirping sound if you listen closely. This little guy (or gal) chewed its way out of the plastic bag – not too difficulty of a task for an insect that can chew through bark.



**Erineum mites on linden.** I had an e-sample and physical sample of these mites this week, both from Brookings County. The patches may be due to the mite *Eriophyes leiosoma*. The mites from galls form a greenish-white patches on the leaves in May. As the summer progresses, the patches turn brown. The mites do no harm to the tree other than making unsightly leaves. I say it might be this mite as mite taxonomy is very complex and name changes are common. The European mite has been reported along the East and West coasts of the United States, but not in our region so will be investigating this further.

**Nightshade in trees.**



I received another question about this vine climbing through the trees in a belt. This is bitter (bittersweet) nightshade (*Solanum dulcamara*), not to be confused with the American bittersweet, a native vine used as an ornamental. It is a perennial weed that forms a vine-like, semi-woody stem. The plant will twine around taller plants and I have seen it growing up through spruce and

junipers. The reddish fruit, as with all nightshades, is poisonous. The easiest management is to just pull the vines from the trees. Pull close to the ground rather than near the tops to be sure to get the entire plant and roots. Since the vine is more common in moist soils, and with the rains all our soils are moist right now, a walk through the tree row pulling these out make for a quick and simple control.

**Peach of a problem.**



This e-sample may not appear to show a lot, other than a dying stem. However it came with the comment about wet soils. Peach, as well as the other stone fruits – apricots, cherries and plums – do not tolerate wet soils. Wet soils, even those that dry out during the summer, can result in a slow decline and eventual death of most *Prunus*, including peach.



## Samples received/site visits

Codington County

**Did this tree die from emerald ash borer?**



Fortunately the answer was NO. The green ash died last year and it was a quick death. The shoot extension was normal until the last two years when the annual growth slowed from more than a foot to less than an inch. The trunk inner bark and sapwood were almost a uniform brown and clearly dead. Oddly enough, the branches, while the buds were dead, still had relatively white sapwood. We were able to find a borer in these

branches, but it was not emerald ash borer. These small beetles were making almost perfectly straight tunnels perpendicular to the grain, rather than the serpentine tunnels associated with emerald ash borer. The other big difference? The adults were burrowing in the tunnels, not the larvae. The adult emerald ash borers do not burrow into the tree. They lay eggs on the bark and the larvae, upon hatching, burrow into the bark.

The beetles turned out to be the eastern ash bark beetle. This is a native insect and doing what it normally does, feed on the dying branches of ash trees. What killed the tree is not known at this time, it might be a trunk canker disease or a root disease or disorder. However, it was not emerald ash borer.



Faulkton County

**What is wrong with this evergreen?**

Since most of the needles had fallen off it makes diagnostic a difficult task! The remaining needles and the shoot itself did not have any signs of a pathogen or insect. The needle loss may be related to a problem occurring in the trunk or roots, neither of which I could tell from the sample. We have a number of pests that attack the trunks and their activities result in the loss of foliage. There are also soil related problems and even the past winter weather could be responsible for the symptoms. A picture of the tree would be a big help!



Most people associated dying birch with the bronze birch borer. However, the river birch (*Betula nigra*) is not a common host for this borer. There are two problem with growing river birch in South Dakota, 1) our winters and 2) our soils. This past winter was as hard on some of our broadleaf trees as it was on our evergreens. River birch is sensitive to winter desiccation injury and the dry fall (this home does not have an irrigation system) and the warm February has left many river birch with dead twigs and branches scattered throughout the canopy.

The other problem is the color of the foliage. The light yellow-green leaves, are due to a micronutrient deficiency in the tree. The elements that are lacking are either iron or manganese or both. These microelements may be present in adequate amounts in the soil, but the high pH (above 6.8) results in these becoming unavailable to the tree.

Correcting this problem is not easy nor are there long-term solutions. The first step is to determine if the problem is due to an iron or manganese deficiency or both. Merely adding iron will not correct the problem if a manganese deficiency is also a problem. Once the elements that are lacking are identified, the next step is how to supply the tree with them. Merely adding these microelements to the soil is not likely to solve the problem. They will be quickly be rendered insoluble due to the alkaline soils. The most common and effective means are trunk injections or implants. There are Medicaps available to homeowners that can be inserted into the tree and if done properly (and in the spring) they should provide two-years of green foliage. There are also pressure injections that can be done by professional tree companies that can provide two to three years of control.



In addition to supplementing the tree with these elements, improving the rooting environment is also advised. A shredded pine or oak bark mulch place around the tree, out at least four feet, can improve the soils by cooling the soil and protecting roots from the summer heat. A 2-inch layer of mulch can also hold

moisture and as it degrades increase the soil's organic matter content. This can benefit the tree as well as the many micro-organisms necessary for tree health.

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