

Pest Update (May 25, 2016)

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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

The nanneyberries (pictured), buckeyes and Tatarian honeysuckles are flowering in Brookings. We are at about the same progression of plant development as last year, but still ahead of 2014. That year the crabapples were just beginning to bloom at this time in Brookings.

Tasks to complete now



Cedar-apple rust galls on the junipers have expanded during the past week and 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 1/2-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 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.....



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 the characteristic D-shaped hole as the adult emerges from the tree. The time to treat 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. If the canopy has dieback back more than about 40% the tree too far gone for treatments.

Tasks to do in a week or two



We should begin shearing pines soon. Pines set only terminal buds, not along the new shoots as do spruce and fir, so the only time to shear them, removing a portion of the current season's shoot growth, is during the candle phase where the expanding new shoot is still tender. Removal of a portion of the shoot during this time period will allow the new shoot to set buds. If the pine is sheared after the new growth has completed expansion and hardened, no



new buds will be set and the shoot will dieback after the older needles are shed, usually in a couple of years. Shearing can begin now and can be performed until the new needles along the candle are about ½

the size of the older needles. After that time, probably in a few more weeks, it will be too late.

Timely topics



As I predicted in last week's *Update*, I have been receiving numerous calls about ash and hackberries dropping their leaves. The last week's late frost caught many ash and hackberries trees just as the leaves were expanding. I received two excellent pictures from the Joshua, one of the SD Department of Agriculture's urban foresters in the Black Hills. These pictures show the classic symptoms of frost damage on both species, blackened tips on the ash

and wilting on the hackberry. Trees that have fully mature leaves, such as basswoods, maples and elms, were not affected. Nor were trees that had not leafed out yet, but oaks and coffeetrees. It seems that these late frosts always catch the trees that are in-between, the ash, hackberries and to a lesser degree, black walnut. When this happens, as it has in past years (2009 and 2010), the ground becomes littered with their small, partially developed leaves that have a blackened margin. While it may appear alarming, affected ash and hackberries, will soon put out additional leaves and usually by the end of May no one can even tell that the tree was defoliated earlier in the year.



It's not a great year to be an ash. **Ash anthracnose is beginning to show up** 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 almost a completely defoliated tree by the middle of June. I have already seen ash trees with many of their leaves lying on the grass beneath them due to

this disease and frost. 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. 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.

We have NOT discovered emerald ash borer in the state.

There seems to be a persistent rumor that emerald ash borer has been discovered in Sioux Falls or Minnehaha County. It has NOT. The farther west infestation in a state adjacent to South Dakota is still in the Twin Cities of Minneapolis and St. Paul, just where it has been for the past seven years. While there is always the possibility that emerald ash borer is somewhere in the state but has not been detected, we may also still be free of this pest. This does not mean we will never find emerald ash borer in the state. Considering the amount of ash in South Dakota, one of our most common species in communities and windbreaks, and our favorable climate for the insect, the appearance of this insect is inevitable.

Lecanium scales are producing honeydew



A number of Lecanium soft scales (*Parthenolecanium*) are drawing attention at this time of year. It's not so much the insect that is noticed as the honeydew they excrete. Soft scales do not produce a hardened shell as do the armored scales. Another difference is that mature female soft scales, as with aphids, produce honeydew during early summer. This is a sticky material that "rains"

down from the scales and is covering the leaves and anything beneath the trees such as cars and deck furniture. The honeydew may also become covered with sooty mold, a black powdery mold. The individual adult female scales are sessile, meaning they do not move, and remain in one spot while they insert their mouthpart into the phloem to feed. The female adults are about 1/12-inch long, and chestnut-brown. The females are the overwintering stage and they begin to produce honeydew and become dome-shaped in May, just about the time they lay eggs beneath their soft scale. The egg will hatch into crawlers, the mobile stage, when lindens are in bloom, probably still two weeks from now. The crawlers will move to the new leaves and shoots and insert their beaks into the

tissue to suck sap from the tree. They become partially mature adults by early autumn.

Soft scales are more a nuisance from the honeydew than a serious threat to the tree's health. These scales are most commonly found on maples, lindens, hackberries and elms. While heavy infestations can result in premature leaf yellowing and defoliation, usually the trees are not impacted so treatments are rarely applied. Scale insect populations are kept in check by their numerous natural enemies and insecticidal sprays often kill more of their enemies than the scales. If the infestations are so heavy that branch dieback occurs, or the honeydew is making a mess of everything below the tree, then the best option is a soil drench of an insecticide containing Imidacloprid applied either early spring or fall. A systemic application of this insecticide will kill the scale but minimize the impact on its natural enemies. However, Imidacloprid application for management of this scale can result in an increase in spider mites and there is increasing concern of the use of this chemical on pollinators. These products should not be used on lindens and other trees with flowers that are attractive to pollinators. Another option for small trees is to treat them with insecticidal soap in a couple of weeks. Insecticidal soap has minimal impact on the scale's natural enemies. However, the soap must be placed on the underside of the leaf and that is a hard place to treat.

E-samples



I received this picture of a buckeye leaflet covered with pale green spots. This is the disease guignardia leaf blotch (*Guignardia aesculi*). The symptoms are similar to another disease, buckeye rust (*Puccinia andropogonis*). The difference between the two is the rust produces circular yellow spots, while the leaf blotch disease creates

irregular shaped blotches that begin pale green and turn orange-brown. The disease is not a serious problem but may result in premature defoliation as well as discolored leaves.



I also received this picture of peach leaf curl. This is a disease that shows up in a few samples each late spring, especially if the spring has had a few cool, wet weeks. The disease only affects the young leaves as they expand in the spring and the foliage that forms after these leaves drop, the later leaves do not become infected. The most

common symptoms are deformed and curled leaves that range in color from a light yellow-green to almost red. Treating for this fungal disease is relatively

easy; a single application of a copper fungicide made in the fall after leaf drop or just before the buds expands in the spring. Do not use copper once the buds start to expand or the tree is in leaf as the spray will injury the foliage.



I also am receiving a few weeds to identify. A picture with the flower is always helpful but if not available at least a description of the flower and bloom time will speed up the identification. The first picture is of **common mallow** (*Malva neglecta*). This is an annual (occasionally a biennial) that is common in lawns and along tree fabric. The plant can become about a foot tall with an equal spread and has a long tap root. Mallow produces small, white to purple flowers. If you can get to it early in the season, hand pulling works great. Once the tap root develops it's tough to pull out the entire plant. Since it generally reproduces by seed, the best treatment is pre-emergent herbicides in the spring. 2,4-D and dicamba can be sprayed in the summer but these are deadly to trees at that time of year and I recommend just mowing the tops off for the summer and treat next spring with a pre-emergent herbicide.



The other weed is **field pennycress** (*Thlaspi arvense*), another annual that shows up in lawns and tree belts. The plant can become about 2 feet tall by the end of the season and the white flowers are in racemes. The treatments are similar to common mallow.

Samples received / Site visits

Beadle County FL1600003
on the shoots of this oak?

What is causing the bark shredding



This is woodpecker injury from the birds foraging for the larvae of an oak gall insect. The gall (*Callirhytis flavipes*) spends the winter just beneath the bark as small, white larvae. The gall wasps emerge from the galls in the spring as adults and move to the newly formed leaves where they insert eggs into the midrib, the central vein of the leaf. We were able to pull a dead adult from the sample. Once the eggs hatch the larvae form a gall on the vein and live out their short lives within this structure. Adults emerge later in the season and lay eggs on the twigs and branches.

The galls formed by this gall wasp are not particularly harmful to the tree, no more than the many other galls that form on oaks. What makes this gall wasp a problem is the woodpeckers that feed on the larvae during the winter. The woodpeckers can shred most of the bark from young trees, enough that the trees are be killed by this injury. I have seen belts of young oaks experience mortality as great as 50% from the woodpecker activity. The trees that are not killed by the woodpecker activity, often have the tops killed back enough that the trees become misshaped and of little value as a windbreak tree. The injury can be so extensive that many people are looking for another tree to plant in their windbreaks.

Bon Homme County FL1600002

Why is my Colorado spruce losing needles?



It's hard to tell from the sample but we were able to find the webbing from the spruce needleminer. The needleminer (*Endothenia albolineana*) gets its name from it's the fact that the young larvae are so tiny they can live inside the needle, mining it as they feed. They eventually outgrow their home and then create a nest of webbed, detached needles to live in. The larvae usually feed on the lower, exterior

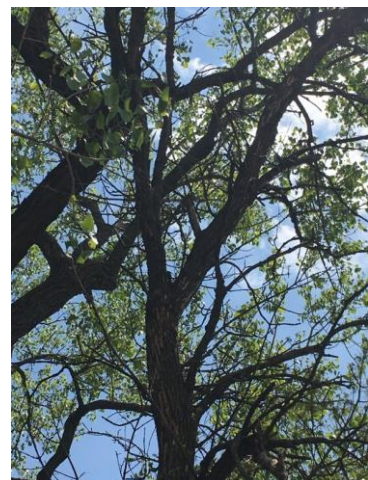
needles, almost stripping the tips of needles but they can also be found in the interior of the tree and even the tops of young trees. The adults are small moths that will begin flying soon and depositing eggs on the needles. Management is usually with a pesticide containing carbaryl as the active ingredient and labeled for this use. The trees should be treated at the end of June. This may not be the only issue with the tree as the terminal needles were slightly twisted. This often means herbicide injury but what may have been used cannot be determined by the sample.

Day County

Is this emerald ash borer?



I received a number of pictures showing ash that were declining near the town of Andover. The report came from a utility forester and the pictures raised enough suspicion that I made a trip up to inspect the trees. The pictures that were sent showed declining ash that also had evidence of woodpecker



activity, usually referred to as 'blonding' as the birds shred the bark away in their search for the insects

such as emerald ash borer. Woodpecker activity is one of the most common indicators that a tree is infested with emerald ash borer but while blanding is almost always associated with this insect, the birds can also be after other insects. This happened to be the case here. When I chiseled away the bark on the suspected trees I found the larvae of the banded ash borer. This insect typically has a one-year life cycle, adults flying in early spring, eggs laid in spring with larvae feeding during the summer before pupating in autumn. However, in severely declining or dead trees, the development may take two years so larvae can be found almost any time of the year. The larvae are the typical roundheaded beetle larvae, quite different from the flathead borers, such as emerald ash borer (which as the name implies have a very flat head) so the two are easy to separate.



The banded ash borer and its close cousin the redheaded ash borer, are native insects that attack dead and dying ash trees.

Infested trees are often mistaken for emerald ash borer infested trees as all these larvae feed within the inner bark and can make similar adult emergence holes. The banded and redheaded ash borers make winding tunnels that also extend deeper into the wood while the emerald ash borer tunnels are serpentine and remain in the inner bark. The banded and redheaded ash borers make an oval adult emergence hole, while the emerald ash borer is a crisp D-shape. The holes of the banded and redheaded ash borers can almost appear as a D as seem in the far left picture but if you cut into the bark just a little way they become oval (center picture) while the emerald ash borer hole will remain D-shaped. The larvae of the banded (also pictured) are much larger diameter than the emerald ash borer.

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