



# Tree Pest Alert



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## Samples

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

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 as the label is the final authority for a product's use on a 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.

Reviewed by Master Gardeners: Bess Pallares, Carrie Moore, and Dawnee Lebeau

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## Plant development for the growing season

The growing degree days (GDD base 50) is at about 2,020 in Sioux Falls, a little ahead of last year which was also warmer than average. If the seasons keeps progressing this rapidly it should start snowing during Rally.

It probably will not snow during Rally though one of the earliest snowfalls in Rapid City was September 11, 2014, so anything can happen. The fall webworms, which may know something we don't, have already hatched and are munching leaves (see this issue's Hand County site visit).

## Treatments to Begin Now or Continue

Insecticide treatments for apple maggot (see *Pest Alert* June 23, 2021, issue) and Zimmerman pine moth (see *Pest Alert* July 21, 2021, issue) should continue.

## Timely Topics

### Emerald ash borer updates Development in South Dakota



The 2<sup>nd</sup> instar larvae are becoming more common in infested trees in Sioux Falls. These larvae are almost 1/2 inch long, but their galleries are still short and shallow. The injury to the inner bark from the 1<sup>st</sup> and 2<sup>nd</sup> instars is minimal compared to the 3<sup>rd</sup> instars that will be appearing in the next couple of weeks.

### Symptom pattern in newly infested trees

Trees that were first infested last year are beginning to present symptoms of the attacks. This is a picture of a green ash in northern Sioux Falls that is showing a common symptom of attacks. There are just a few branches in the upper canopy that have small, light

green leaves. This is one of the first symptoms we see in infested trees in South Dakota.



### Complications in removed dead ash

I had an opportunity to work with a crew in the Chicago area that was tasked with the job of removing standing dead ash trees. These are trees that the homeowner did not treat and then procrastinated about removing it while the tree still had some life remaining.



Once a tree infested by emerald ash borer dies, the removal can become a more complicated process. The wood has the texture of Styrofoam (that seems to absorb bar oil), not the idea media texture for cutting with a chain saw. It does not hinge well.

The other challenge is the dead roots. The network of galleries created by the larvae as they feed severs the network of tubes that carry sugars produced by the leaves from moving down to the roots. As the roots starve, the canopy begins to die since less water is carried up the tree.



This picture shows the end results of an infestation. The base of the tree was completely decayed. The safest

way to remove this tree was to place a rope around the trunk about half-way up the tree and pull it over (note: this also carries risk at the tree can break just above the attachment point). The tree snapped at the base.

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## E-samples

### *Cicada killers on the move!*

If you are a cicada, this is bad news. If you are tired of listening to all their buzzing every night, this is good news. The cicada killers (*Sphex speciosus*) are flying now in their search for adult cicadas. Amanda, the urban entomologist with SDSU extension, took this picture of one in Brookings last week.



The cicada killers are very large wasps. They are about 1 ½ inch long with a black abdomen with yellow bands. This wasp has no problem buzzing right by your head if you are between them and their cicada target. Some people have confused them with the “murder hornets” that have been in the news.

Fortunately, the cicada killers are only murder hornets for cicadas. The female wasps catch adult cicada and then sting them with a substance that paralyzes them. They carry them back to their burrows in the ground and the wasp’s larvae feed on the live, but paralyzed, cicada – think of Kane in the movie *Alien*, not a pretty sight.

### *Flatheaded (metallic) wood borers*

A landowner cutting up dead fallen pines in the Black Hills sent me this picture of a beetle that was walking on one of the logs. This is one of the flatheaded wood borers that lives in the Black Hills. They are also known as metallic wood borers due to their bright, iridescent appearance.



The adults are about ½ to 2 ½ inches long with short antennae and a wide oval body shape. The adults can

be found walking on the sunny surface of logs. The larvae are about 1 to 1 ½ inches long, white with an enlarged area behind the head capsule. The larvae burrow in the sapwood and heartwood of freshly cut logs.

The beetles are not a threat to a standing, live tree but can reduce the value of logs. The wide, meandering galleries carved by the larvae can degrade the wood. The adults also introduce bacteria and fungi into the wood that also aids in decomposition of the log.

### ***Kermes scales on swamp white oak***

These round bumps on the shoots are kermes scale (*Allokermes*). This is not an insect, but a complex of about 30 different species of closely related insects. The adult females are light brown with dark brown bands. They have a round shape and are about ¼-inch diameter. They are found at the shoot tips near the base of leaf petioles.



Kermes scale immature stage, crawlers, and the adult females suck the sap from their host. They also produce honeydew, a sweet, sticky substance as a by-product of feeding that provides a substrate for sooty mold, a fungus.

Dense infestation can result in premature leaf drop and decline in shoot growth. Management is primarily by natural enemies hence insecticides need to be applied carefully to minimize harm to these insects.

The adult females are out now. They will be laying eggs soon and after hatching this fall, the mobile crawlers will migrate to bud scales which serve as their overwintering site. The crawlers move to the base of the buds to feed on sap in the spring and become adults in mid-summer.

Insecticides containing Bifenthrin or Permethrin as the active ingredient (AI; and labelled for this use) can be applied in the fall to kill the young crawlers. A more friendly (to the natural enemies) approach is applying dormant oil in early spring, about 200 GDD, before the oak buds open to kill the overwintering crawlers. An insecticide containing Pyriproxfen as the AI can be applied in late spring as the crawlers begin to migrate.

### ***Sawyer beetle***

Josh, a forester with the South Dakota Department of Agriculture and Natural Resources, received this picture of a landowner in the Black Hills. This is a sawyer beetle

(*Monochamus*), a native longhorn beetle that feeds in pines. These boring insects make homes of dead and dying trees and are not a threat to healthy tree.



The drought has left us with a lot of dead and dying pines in the Black Hills so not too surprising to see them. The adults are shiny dark beetles about an inch long with tufts of light hairs in irregular bands along the wing covers. They, along with all longhorn beetles, have long antennae, often longer than the body.

There is staggered emergence so all life stages can be found during the summer. The larvae can be found in dead pines and recently cut logs. They are almost an inch long at maturity, cream colored, rounded with well-defined segments (but no legs). The tunnels are filled with long fibrous debris.

The larvae can be a problem in recently cut logs. They can burrow through the wood and degrade the wood, so it is no longer useable. The adults are out now and laying eggs so any logs cut between now and September should be processed promptly.

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## **Samples received/Site visits**

### ***Brookings County, Not emerald ash borer***



We had a tree in Brookings that presented all the symptoms associated with being infested with emerald ash borer. The canopy was thinning with some branches

sparsely covered in stunted, light green leaves. There was also a thick cluster of epicormic shoots covered with large deep green leaves. The upper canopy had extensive blanding and there were woodpecker drills in the blanding. These are the classic symptoms of emerald ash borer.

But when we finally obtained permission to inspect the tree it quickly became apparent this was NOT emerald ash borer. The reason the symptoms were the same - thinning canopy and lush cluster of vigorous shoots - was this was also due to girdling. But the girdling was not from a network of tunnels created by emerald ash borer but a cable that was embedding in the trunk!



The cable had cut through the inner bark as effectively as borer and had the same effect. The cable was placed around the base of the codominant stems many years ago, probably to hold them together.

There were borers in the tree, but these were the redheaded ash borer (*Neoclytus acuminatus*). These native borers infest dying ash. They burrow deep into the sapwood but spend some time in the inner bark - the same place the emerald ash borer feeds - and while in the inner bark are equally accessible to the woodpeckers. Therefore, the tree had extensive blanding.



Emerald ash borer is also attracted to girdled trees so this would have been a great candidate for attack and if there were any of them in the area, they would have attacked this tree as well. However, stripping the bark away revealed only the wider and meandering galleries of the redheaded ash borer, not the narrow and more serpentine galleries of emerald ash borer.

### **Hand County, Fall webworm**

A tree owner noticed some webbing in the upper branches of a quaking aspen. The webbing is from the fall webworm (*Hyphantria cunea*). This is a native defoliator that feeds on cottonwood, elms, maples, poplars, and walnuts in our state.

The nests are made at the tips of the canopy, often webbing several slender branches together with long threads of silk. The larvae feed within the webbing, gradually enlarging the nest as the insects become larger. There are some cottonwoods and walnuts out there that already look like they are covered with "cotton-candy".



The adult moths were out flying a little early this year. They laid eggs at the base of leaves and these have now hatched. The larvae are about 1/2 inch long now but will reach about 1 1/2 inch long by the time they mature, about four weeks from now. The larvae have a black head with a greenish body. The body has a dark stripe along the back and long white hairs in tufts along its length. They are hard to see as they are surrounded and covered with the webbing.

The webbing provides protection to the webworm larvae. Lots of other insects find the fall webworm tasty (and birds will nibble on them as well) and the webbing keeps their natural enemies at bay. The webbing also protects the webworms from most insecticide sprays so spraying the nest will have minimal impact unless the spray is gasoline, and you have a match. Obviously, this is NOT a recommended practice and will probably kill the tree as well as the webworms.

While I do not see too many folks spraying gasoline on their tree, I do occasionally visit a tree that the webs were doused with gasoline and lit. The reason for these visits is the tree owner wants to know if the charred remains of a tree will come back to life. Nope.

### **Hughes County, Carpenterworm in ash**

This was another report of emerald ash borer that turned out to be another insect, the carpenterworm (*Prionoxystus robiniae*). Ashes have always been attacked by ash bark beetle, ash/lilac borer, banded ash borer, carpenterworm, and the redheaded ash borer among others. No one paid a lot of attention to these borers as they typically attacked dying trees.

Now we do as everyone is on alert for emerald ash borer. At the beginning of the emerald ash borer infestation in Ohio, back in the early 2000s, they were surprised to discover that many of their ash were already infested by the native borers.

This tree had suffered some mechanical injury to the base and that was the opportunity that carpenterworm needed to attack the tree. The base was covered with the large holes, pencil-size, that have some dust around the opening as the larvae clean out their tunnels.



The tree needs to be removed as the base is rotted. Even without emerald ash borer, we have many dying ash to be removed!

### **Potter County, Fasciation in spruce**

This was a visit to a belt of Colorado blue spruce around a property. Several of the trees, ones about 6 to 8 feet tall, had random branches that had distorted needles at their tips.



The needles at these tips were twisted and fused together and the shoot tips were flattened and slightly elongated. At first this has the appearance of exposure to herbicide drift but upon closer examination it turned out to be fasciation.

Fasciation is deviation of normal plant development where the shoot tips become widened and flattened. This phenomenon is more common in herbaceous plants than woody plants and is more common in broadleaf

woody plants than conifers. It seems to be genetic though some may be due to a bacterial infection, but little is known about the cause.

### **Potter County, Death by fabric**

This was a visit to inspect several long rows of mature (20 plus years) Colorado spruce. There were some spruce that had recently died, within the last few years, randomly along the rows. These trees were slightly stunted compared to their neighbors. The trees had died "suddenly", as the last year's growth was not much less than its healthy neighbors.



The reason for the sudden death was apparent once the base of the trunks was checked. The trees were in fabric and most of this fabric was covered with a thin layer of sod. The dead trees had the fabric embedding in their trunks which resulted in girdling, severing the conductive tissue connecting the trunk and needles to the roots.



Unfortunately, this is a common occurrence in cedar and spruce belts about 15 to 25 years old. The lower branches shade the fabric, so it is not exposed to UV light and maintains its strength rather than gradually deteriorating. The fabric often becomes covered with sod, and this also aids in maintaining its strength. If the slit is not made wide enough or cut as a wide "X" so the trunk can expand eventually the trunk grows into the fabric and the material is too strong to tear.

Fabric is beneficial for the first five years or so after planting and the use of this material is recommended. But fabric in cedar and spruce belts should be inspected five or six years after establishment. If the fabric is beginning to be stretched by the expanding trunk, the fabric should be recut or removed. Once the trees are ten years old or older it might be too late. Some conservation districts offer fabric removal as a service.