



# 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

Sioux Falls is at about 1,400 growing degree-days (base 50), almost double for 1993 when we barely reached into the high 80s during the summer (the South Dakota year without a summer<sup>1</sup>). The Amur maackias, one of our few summer-flowering trees, are blooming now, about two weeks earlier than normal.



If we just had the rains this would be a great growing season. Sioux Falls has had about 9.5 inches of precipitation this year. At this time in 2019, they already had almost 22 inches!

<sup>1</sup>The true Year Without a Summer was 1816 when temperatures dipped into the 40s in New England and Boston had snow in June. People thought cutting down the forests was letting the heat escape, but the real reason was Mount Tambora erupted in Indonesia. The ash from that eruption blocked sunlight and dropped temperatures around the globe for more than a year.

## Treatments to Begin Now

The only treatment needed now (other than continual treatments for apple maggot, see the June 23 issue of the *Pest Alert*) is water.

## Timely Topics

### ***Emerald ash borer update***

Infested trees are noticeable throughout Sioux Falls. Mike from Eagle Lawn and Landscape sent me pictures of some infested trees near 6<sup>th</sup> and Cleveland. These trees are showing the classic symptoms of infested trees. The top of this tree has only a thin scattering of foliage and a tuft of dense sprouts near the base of the crown.

Trees with symptoms this advanced have been infested for at least two years, perhaps three. This means when we found the first infested trees (thanks to Kristi at Arbor Care) about 3 miles north of here in 2018, this tree was probably just being attacked.



Adults are still emerging, but the peak is behind us, and I expect emergence to taper down in another week. There will be a few emerging even into late July. Since they live for about three to six weeks (and not many live six weeks), all the adults should be dead before Labor Day.

## E-samples

### *European elm flea weevil*

I received a picture of elm leaves filled with holes from Ivy over at the Spink County Conservation District office. The holes you see in these Siberian elm leaves are from feeding by the European elm flea weevil (*Orchestes steppensis* syn. *alni*). This insect was accidentally introduced into the U.S. sometime prior to 2003 where it was discovered in Indiana and Ohio. We first found it in Hot Springs in 2009, and it is now throughout the state.



The adults, which are small reddish-brown weevils, live over the winter and deposit eggs on the newly expanded leaves. Once the eggs hatch, the larvae burrow into the leaves, mining the tissue between the upper and lower surface. Eventually the mined tissue drops out of the leaf and the infested leaves will have small holes between the veins.

There is only one generation per year. By now the larvae are finished feeding and they have become pupae. The adults will emerge later in the summer. They will also feed on the leaves but most of the damage is done.

The damage is more cosmetic than a threat to the tree's health. Usually, insecticide treatments are not necessary, but most commonly available insecticides such as most containing Acephate, Carbaryl and Imidacloprid will work (but check label). The treatments need to be applied in the spring as the leaves are opening.

The insect prefers the Asian elms, especially Siberian elm, and any hybrids with Siberian elm in their parentage. This means Vanguard elm (a Siberian x Japanese elm cross) can have every leaf infested while a nearby Accolade (Japanese x Wilson cross) will be free of damage along with an American elm (or only minor damage).

So why does a European weevil like the Asian Siberian elm more than European elms? Because it is not from Europe, it is from the steppes of western Russia (and Mongolia and northern China) where it happily munches on native Siberian elm. The insect was misidentified when it was first found in the U.S., and it was not until 2016 that the error was caught and by then the name stuck.

### *Rhino beetles*

The Rhino beetles (subfamily Dynastinae: Scarabaeidae) are known for their unique horn (males only) that looks like a rhinoceros horn (they are also known as Unicorn beetles). The males use the horns to fight one another – always getting into trouble.



Leland from the NRCS Murdo office sent this picture of one along with a bunch of them around and in the base of a hackberry tree down in Todd County. The question, would they harm the tree?

No, the larvae of the rhino beetles feed in decayed wood. They are not the reason the wood is decayed; it just makes a nice home for them. The adults also like to hide there to avoid predators (note: rhino beetles have twice the protein of chicken and are being studied as a human protein source – rhino burgers!).

### **Western pine tussock moth**

There is a major infestation of western pine tussock moth (*Dasychira griseifacta*) in eastern Montana. The insect can also be found in the Black Hills but is not causing the same level of damage there.

The larvae, which are mature now, are rusty brown with a dark head and numerous tufts of white and black hairs along the body. The 2-inch-long larvae also have a tuft of longer hairs projecting from the head and the tip of the abdomen.



The larvae overwinter and begin their feeding in the spring on the old needles. The tussock moth larvae will move to the new needles as they expand. Infested trees have a reddish-brown appearance from the needles that were only partially consumed.

The larvae have mostly completed their feeding for the year and the hairy cocoon can be found hanging from the shoots. The grayish brown moths will emerge beginning in another week or so.



The defoliation, even severe defoliation, is rarely a tree killer. It takes several years of defoliation by the tussock moth to kill a tree and outbreaks do not often last that long. The stress of the defoliation can leave these trees susceptible to attack by engraver beetles and that,

combined with the drought, can result in extensive tree mortality.

### **Woolly elm aphid**

The curled American elm leaf picture sent in by Becky, Codington County Extension, is from the feeding by the woolly elm aphid (*Eriosoma americanum*). A close relative, the woolly apple aphid (*E. janigerum*) can cause similar damage on elms.



These aphids begin sucking sap from the leaves as they open. They also inject a toxin into the foliage. This toxin causes the leaf to curl and twist. The woolly elm aphid feeding causes the margin of one side of the leaf to curl completely over so that it almost appears as a gall.

If you pull open the curl, the interior is filled with fuzzy white aphids. The winged form of the aphid is appearing now, and these are taking flight to the alternate host, serviceberry. They feed on the serviceberry roots for several generations and another winged generation of adults will fly back to the elm in fall to lay eggs in bark crevices. The eggs overwinter and after hatching, the young aphid crawls out to a leaf and begins feeding.

The aphid does not cause any serious harm to the elm host. They detract from the tree's appearance and the sticky honeydew produced by their feeding is an annoyance but no harm to the tree's health.

Treatments are generally not needed and at this time of year are ineffective as the insect is leaving the elm host.

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## **Samples received/Site visits**

### **Brookings County, Zimmerman pine moth**

If you notice whitish lumps of sticky goo near the branch attachments of a pine, you probably are looking at burrowing by the Zimmerman pine moth (*Dioryctria*

*zimmermani*). The larvae are beginning to burrow in the wood and the tree is creating pitch to force them out.



The larvae burrowing now into the pines hatched last fall. They spent the winter as very tiny larvae beneath bark flake. This spring they crawled out from under the flake and moved to the rough tissue surrounding the branch collar (where the branch connects with the trunk) where they begin to burrow.



The burrowing weakens the attachment, and one common symptom of an infested tree is broken branches. Zimmerman pine moth will attack Austrian, mugo, ponderosa, and Scotch pine. It is most common on Austrian and ponderosa pine. It can even attack the tops of spruce.

If you pull away the goo, you can easily pull out the young larvae. They are about 3/4-inch long, dark gray with a little red or pink. They will be feeding for another week or so before pupating. The adult moths will emerge in early August.

The two treatment windows are 1) in the spring (April-May) to kill the young larvae before they burrow into the wood and 2) early August, to kill the newly hatched larvae before they crawl beneath the bark for the winter.

The most common insecticides used for Zimmerman pine moth contain either Bifenthrin or Permethrin as the active ingredients and are labeled for control of this insect. Regardless of which insecticide is used, sufficient

pressure must be applied to coat the trunk and branch attachments, not just mist the needles.

### ***Davison County, Juniper (cedar) twig blight***

These were two samples submitted and both showed twig discoloration. These symptoms, yellow and dying shoot tips, is often just given the name “juniper twig blight”, blight meaning dead issue. While this phrase describes the symptoms, it does not define the causal agent.

This is the dilemma. There are numerous agents for these symptoms, and it often requires a close inspection for fruiting structures and spores (and sometimes a humidity chamber to have the spores produced) to determine the pathogen(s) responsible.

There were two different pathogens found on these two samples. Sample #1 had *Kabatina* twig blight, while sample #2, *Botryosphaeria* canker.

*Kabatina* twig blight (*Kabatina juniperi*) is one of two common twig blights, the other being *Phomopsis* (*Phomopsis juniperovora*). These two pathogens will cause similar symptoms; shoot tips will turn yellow, then red, and finally gray before dying. There are often small lesions on the shoot.

The difference is when the symptoms appear. *Kabatina* infections occur in the fall so the symptoms appear in early spring, late March through April. *Phomopsis* infection occurs on the new growth in late spring, so symptoms appear in May and June.

Since it is hard to remember when the symptoms appear, usually we must find the fruiting structures and spores to separate the two. Determining which pathogen is responsible for the symptoms is important as there are fungicides labelled for *Phomopsis* but very few for *Kabatina* and these appear to be less effective.

*Botryosphaeria* canker (*Botryosphaeria stevensii*) is occasionally found on junipers in South Dakota. It is more common on Rocky Mountain juniper than eastern redcedar, but we have seen it on both species.

This canker disease causes sunken lesions on the branches of the tree. The cankers restrict water flow to the shoot tips which results in yellowing and eventually death of the tissue beyond the canker.

The cankers are hard to see but usually are at the union where the branch is attached to a limb. There will be a small sunken dark patch, almost looks like a bruise, and once the bark is removed, it exposes the chocolate brown dead tissue of the canker. Fruiting bodies occur in these cankers.

While the disease does result in yellowing shoot tips, like *Phomopsis* or *Kabatina*, these two pathogens are limited to the tips. *Botryosphaeria* canker will kill the entire shoot and branch. There are no effective treatments for the disease other than prune out the branches with cankers – usually an impractical treatment.

### **Faulk County, Hackberry defoliated**

There were multiple issues at one of the colonies. There were several hackberries that were had very few leaves. The leaves that were on the trees were small and tattered. The question was whether glyphosate herbicide could cause these symptoms. The most likely cause for the sparse appearance of the trees was the cold weather we had had the beginning of May. This result in injury to the young leaves as they were expanding. Many hackberries are having a second leaf flush now and hopefully these trees are recovering as well.

There were also pictures of bur oaks that had numerous holes in the foliage. We had pockets of minor defoliation from May/June beetles (*Phyllophaga*) this spring. It was not widespread nor as severe as several years ago, but ash, cottonwood, and oak were partially defoliated by this insect. Infested leaves looked like someone had taken a large hole-puncher to them! Since the insect has completed its adult feeding and is back in the soils, there is no need for tree treatments.

### **Minnehaha County, Spruce spacing issues**

This stop was to a property with a long line of spruce. Some of the spruces were beginning to decline as evident by the loss of needles on the lower branches and the back side of the trees (where there was another row of ash).



I could find spruce bud scale and spruce needleminer, but the problem was not the pests but the tight spacing. The trees were crowding each other and the competition for light was a major stress.

There are a lot of Norway spruce in the row, and this adds to the challenge. These trees can become taller than most spruce, 50 or more feet, and wider, 25 to 30 feet. This means 20 to 25 feet between trees is optimum, but I frequently see recommendations of 6 to 12 feet between trees.

Tight spacing (8-12 feet) for the tall conifer row does provide quicker benefits as a windbreak but these same benefits are lost sooner as the trees decline. At least 16 feet between trees is needed for long-term benefits.

### **Moody County, Pear slug**

The small slug-like critters on this purpleleaf sandcherry are called pear slug or pear sawfly (*Calora cerasi*). The name sawfly is more accurate as they are insects, not slugs. The name sawfly is from the adult female sawing a slit in the leaf to lay eggs.

The adults are small 1/4-inch stingless wasps and are rarely noticed. The larvae become about 1/2-inch long at maturity and have a shiny appearance due to the slime covering the body.



The larvae feed between the leaf veins and only the upper surface of the leaf so the damage looks like stained glass windowpanes. The damaged tissue turns brown.

The damage looks unsightly but does little harm to the plant. While purpleleaf sandcherry is one its favorite hosts, they can be found on other cherries, as well as cotoneaster and mountainash.

If a treatment is desired, the larvae are easily killed by an insecticide containing Carbaryl or Malathion as the active ingredient (and labeled for control of this insect). Usually, people do not notice the damage until it is done and at that time a treatment is useless. Now is the time to treat as the pear slugs are just beginning to feed.

### **Potter County, Spruce bud scale**

This was a spruce sample showing some needle loss of the current and previous year's needles. At the whorls there were needles with black soot on them and small reddish shells attached near them. These are spruce bud scales (*Physokermes*). This insect has been discussed in previous *Pest Alert* this year.

This may not be the only problem with this spruce, but it was the only insect or pathogen found on the sample.