

# Pest Update (April 22, 2020)

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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, 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 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



Corneliancherry and forsythia are beginning to bloom in Brookings. This is about two weeks later than average. The serviceberries and crabapples are still in the bud stage though they are usually in bloom by this time (note: serviceberries are blooming in Vermillion). Compared to past years, this growing season seems to be off to a very slow start due to the cold weather but at least it's drier in many areas of the state.

## Treatments to do soon (or now)

**Apple scab and cedar-apple rust** – The apples and crabapples buds are beginning to swell so the treatment time is very soon. Please see the last issue of the *Update* for more information on treatments.

**Spruce needleminer treatment** – the larvae will begin moving from their webbed nest and resume their feeding. A spray of high-pressure water right now may knock them off the tree though be sure to rake up the fallen needles and larvae after the water spray. The other approach is pesticide treatments (more information on treatments for this insect can be found under Samples Received/Site Visits – Minnehaha County) to kill the larvae as they begin moving out onto the foliage. Remember to spray inside the canopy, not just the exterior. Actually “power washing” the lower canopy of the spruce is a good way of cleaning off all the dead and dying needles as well as some insects. However, be aware the tree will appear a little more open afterwards!

**Zimmerman pine moth** treatments should begin soon. If the pine has pitch masses around the junction of the branches and trunks this is a good indicator that the trees are infested and should be treated. The most effective treatment is an application of an insecticide applied as a trunk drench. More information on this insect can be found under Samples Received/Site Visits – Turner County.

## Timely Topics

### ***Sioux Falls emerald ash borer update***

Branch sampling for emerald ash borer is almost completed. This task involved selecting four mid-canopy branches from random ash trees, stripping the bark away and counting larvae. The results show that while the insect is established in Sioux Falls, the infestation is still concentrated in the northern half of the city though there are probably undetected satellite infestations in the community.



Many of infested trees appear to have had a higher larval density a few years ago. The previous two winters - 2017/2018 and 2018/2019 – had very low winter temperatures. The temperatures during these two winters dipped below -25°F, the threshold for significant cold mortality of the larvae. Unfortunately, this past winter, 2019/2020, was relatively mild and we saw no winter mortality. I expect we are going to see the population of emerald ash borer rebound and higher infestation levels in trees and more trees infested in the coming years (assuming our trend is

warmer winters).

### ***A reminder to treat ash trees in Sioux Falls***

There were about 8,000 ash trees in Sioux Falls treated in 2018 and these are due to be retreated in 2020. Retreating these trees and continuing to treat additional healthy, valuable ash trees will help “flatten the curve” of this insect epidemic. We are still at the beginning of the epidemic in Sioux Falls and the more actions we take now – treating high value ash and removing unwanted ash – will pay off in future years.

### ***A reminder on ash pruning in Sioux Falls***

We are coming up to the cut-off for pruning or removing ash trees within the city. Right now, the insects are beneath the bark as a larvae or pupae and will begin emerging as adults in early June. We do not want people cutting ash during the summer and having adults emerge from the wood as they travel – that is a great way to have the insect spread throughout the community faster.



The experience from the last two years has shown that emergence begins in early June and ends by late July. Since the adults only live for three weeks or so the last adult has finished laying eggs and has died by late August. This make the two holidays, Memorial Day and Labor Day, as good ‘bookends’ for the end and start dates for pruning and removing ash.

The importance of restricting the movement of ash in the community during the summer is shown by this recent ‘pruning’ example I came across in Sioux Falls. I am using the word pruning but a better choice would be topping. This method of pruning can result in extensive decay and the formation of weakly attached sprouts. If the intent

is to come back in a year or two to train the sprouts back into a crown, then this might be an acceptable means of restoring the canopy of a tree.

But the issue here is when I looked at a few small pieces of wood that were missed during clean up I found the galleries of the emerald ash borer. Apparently, this was an infested tree and contained larvae. If the pruning were done in the summer, instead of now, the risk would be that adults could emerge from the wood as it was moved to another area.



Another reminder is the city prohibiting the movement of ash in the community between Memorial Day and Labor Day is not the same as the EAB quarantine. The state and APHIS have a joint federal/state quarantine prohibiting the movement of any hardwood firewood as well as ash chips/mulch from an area that includes all of Minnehaha County, Lincoln County north of Hwy 18 and northeast Turner County (southern border Hwy 18 and western border Hwy 19). These wood products (as well as ash nursery stock and ash packing material) cannot be moved out of the quarantine zone *at any time of the year* except under a very limited permit system.

## E-samples

***Winter-burn is beginning to show up on arborvitaes.***



There is a lot of winter dying injury on arborvitaes and yews. The injury really does not begin to show up until these evergreen shrubs begins to green up and then the drying tissue becomes evident. The brown foliage should be removed and pruned back to green foliage. If after pruning out the brown foliage there is only a bare branch, prune the branch back to the trunk. Arborvitaes and yews will not send out new shoots from stubs.

## Samples received/site visits

Clay County

### **Possible emerald ash borer infested tree**

One of the best indicators of an ash tree being infested with emerald ash borer is blanding. Woodpeckers have developed a real taste for emerald ash borer. The insect lives just beneath the bark so its easily reached and after a few years there usually are a lot of larvae so plenty to eat. Woodpeckers will scrap off the outer layer of bark in their search for the insect. This action reveals the lighter color bark beneath, a process called blanding. The blanded bark will also have drill holes where the birds pecked through to strike a larvae.



The Animal and Plant Health Inspection Service (APHIS) received a report of an ash with blanding down near the along the Missouri River. The emerald ash borer moves easily along river system as the banks of most of our rivers are lined with ash. Since it is found along the Missouri River in the Omaha area, it will be moving north and perhaps this tree was a harbinger of things to come.

When I found the tree, it was presenting extensive blanding from the branches near the top of the tree to the lower trunk. Fortunately, it was not an ash, but an American elm. Woodpeckers will search for more than just emerald ash borer in ash trees. Any insect that is just beneath the bark and in large numbers is a target for these birds.

This American elm was heavily infested with bark beetles. The egg galleries were throughout the wood. Gallery patterns are useful in determining which elm bark beetle may be responsible for the tunneling. Our native elm bark beetle (*Hylurgopinus rufipes*) has the adult egg-laying gallery (the long straight tunnel) run perpendicular to the grain of the wood. The smaller European elm bark beetle (*Scolytus multistriatus*), the insect here, has the adult egg-laying gallery run parallel to the grain. A third bark beetle, the banded Elm bark beetle (*Scolytus schevyrewi*) forms similar galleries as the smaller European elm bark beetle but the larvae galleries meander and overlap one another, rather than radiate out without touching.



### Lincoln County

### Declining spruce



I made a stop to look at some declining spruce. The symptom pattern was dead lower branches (actually dead up to about half the height or more). The tops were still green but were also covered with cones. Heavy cone production is not a good symptom. Unless it's a conifer than has a pattern of years with heavy cone production, an excessive number of cones tends to be an indicator of a stress episode.

The branch shoot growth pattern also indicated a stress about two years ago. The needles that formed in 2018 were a "bottlebrush", a short internode with a dense

cluster of short needles. The following year, 2019, was just a little better. This tends to indicate some stress occurred beginning in the spring of 2018 that affected shoot expansion.

So, what the stress? Most likely it was wet soils. The spruce along the slope were fine but as you proceeded to the base of the slope, the symptoms – dead lower branches and heavy cone production – increased. The previous two years were very wet years in southeastern South Dakota and the spruce suffered from the poorly aerated soil environment.



This year we may have normal, or even slightly below-normal, precipitation and these trees may begin to recover. I have even seen some spruce re-sprout new shoots along their trunks following a return to normal conditions. However, the sprouting is never enough to restore the lower canopy and these trees will continue to look poor for many years.

#### Minnehaha County

#### Spruce needleminer



We often see the lower branches of Colorado spruce devoid of foliage. This condition is usually attributed to cytospora canker or even a needlecast disease but insects can also cause these symptoms. One of the stressors for this row of spruce was the spruce needleminer (*Endothenia albolineana*).

The presence of this insect is detected by detached brown needles (often with holes at their base) that are webbed together in small clumps. These clumps are usually found about a foot or more behind the branch tips. If you pull apart these clumps you might find a small (rice-size) reddish-gray caterpillar.

The adult moths lay eggs in early summer, usually before the 4<sup>th</sup> of July, on the needles. Once a larva hatches, it burrows into the base of a needle (hence the name needleminer) and hollows it out. It cuts the needle off by autumn, exits the hollow needle and then masses detached needles around its body with silk threads. The larva spends the fall and spring munching on these needles.



Treat infested trees with an insecticide labelled for needleminers and containing either carbaryl or permethrin as the active ingredient. The first treatment can be

made in late April to kill the larvae as they resume feeding in the spring. Another treatment can be made in mid-June to kill the adult moths as they lay eggs.

Turner County

### 'Stupid' tree growth



That is the way these twisted, distorted tops were described and the phrase fits. Some of the trees had their tops bend to the side. I have seen this before in spruce and found these were due to a borer. About 20 years ago we reared out several larvae and found they were the Zimmerman pine moth (*Dioryctria*).

Zimmerman pine moth is a serious problem with pines in the Midwest and it occasionally attacks spruce. The larvae bore into the stem and branch bases resulting in dead or distorted branches and terminals. If you look

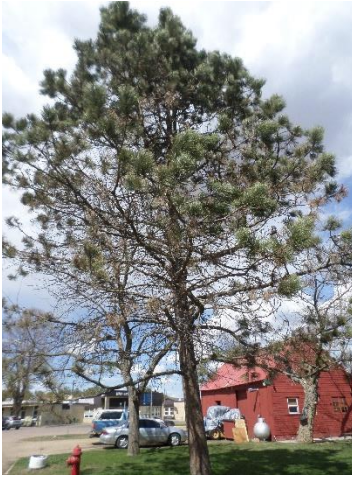
close at these infested shoots or branches you will see pitch (resin) masses with small sawdust crumbs sprinkled in them. This is what I found near the top of this tree. These are the entry points for the larvae.



Zimmerman pine moth attacks the tops of young pines so infested trees often have twisted tops where the terminal was killed and a branch bend upward and became the new terminal. Once the pine is mature, about 20 feet tall or so, the borer is associated more with branch breakage along the trunk as it tends to infest the point where branches are attached to the trunk.

On spruce they seem to be associated with distorted tops rather than branch breakage. Even on mature trees I only see the tops killed or distorted. It is not a common problem but once it appears on one tree in a belt (or in a nursery many years ago) it seems to spread out to infest some of the surrounding trees.

Zimmerman pine moth is a complex of very closely related insects. The best time to treat is late April (beginning when Magnolia flowers are just beginning to open which is now) to kill the overwintering larvae before they burrow into the wood and again in August (when goldenrod begins to bloom) to kill the newly hatched larvae. Insecticides labelled for treating Zimmerman pine both and containing bifenthrin or permethrin as the active ingredient should be applied with a pressure spray so that the droplets reach the trunk, not just the outer canopies.



I was asked to stop by to look at a tree in Viborg. It was a special tree to the homeowners. They dug it up during a vacation to the Black Hills in 1980 (note: you not supposed to dig up trees from the National Forest or Custer State Park). They *really* want to save it.

They may be a little late. Almost half the canopy has already died from diplodia tip blight. Tip blight is probably the most common disease of pines, particularly Austrian pine. Symptoms in early summer are the new needles turning brown and wilting. The infected shoot tips become stunted. The disease is not usually a tree-killer but will disfigure it enough you might wish the tree would die. The disease overwinters in the infected shoot tips and on the cones. Infected trees will gradually become thinner and have numerous dead tips and old, hanging needles.



The best means of managing the disease is with fungicides. The most common treatment is a foliage spray with a fungicide containing thiophanate-methyl, propriconazole, or chlorothalonil (labeled for control of this disease) applied just before the bud sheaths have opened. Timing is critical, once the bud sheaths have opened and the candle begins to form, it's a little late to begin the first application and this is the one that provides most of the protection. A second application is made about two weeks later.

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