

Pest Update (June 10, 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

The growing degree-days for Sioux Falls are almost 600 degree-days (as of Wednesday, June 10) so emerald ash borer adults are emerging and flying now. The emergence of this insect coincides with the flowering of black locust and these trees are blooming across the state.

Treatments to do now



A Dothistroma treatment should be applied soon. This is a very common disease of Austrian pines and is responsible for some of the discolored needles we are seeing on pines this year (remember we have winter injury as well going on). The symptoms for dothistroma are needles with dead tips beyond yellow to tan spots. The spots have now enlarged to form brown to reddish brown bands and sometimes fruiting structures can be seen in the bands.

The young needles are resistant to the disease until they mature (and the candles are fully expanded on many pines by now). The mature second year needles are susceptible for the entire growing season. The treatment is a copper fungicide applied now and repeated in at the end of June.

Tasks to complete in another week



Spruce bud scale crawlers will soon be hatching. The scale resembles a small round, reddish bud and they can be found on near the tips of the branches where the side branches attach to the shoot. They, and their mobile young called crawlers, suck the sap from the shoots resulting in dieback and decline of the lower branches. Since these are soft scales, they produce honeydew that results in a black, sooty appearance to the needles and twigs.

The scales have one generation per year and the crawlers' hatch about the time littleleaf lindens bloom which should be in another week or two. The best treatments are insecticides containing Carbaryl as the active ingredient and applied on the foliage and shoots near the tips. Products containing Imidacloprid can be effective as a soil drench but need to be applied in the fall for control the following year.

We are also coming up to the time to treat for spruce needle miner. The needle miner (*Endothenia albolineana*) gets its name from 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. The treatment is usually with a pesticide containing carbaryl as the active ingredient and labeled for this use.

Infested tree should be treated in another week or two as the adults should be flying by then. This is a little earlier than normal as some years the treatment is not applied until the beginning of July.

Timely Topics

Thinning ash canopies do not mean emerald ash borer



The number of suspected emerald ash borer calls is almost overwhelming! I have received pictures (email and text) as well as telephone calls and they are almost all the same. The ash tree is leafing out slowly, almost branch by branch.

A thinning canopy is one of the common symptoms to an emerald ash borer infested tree, but this same symptom can be due to other agents. We are still seeing a lot of freeze injury on ash and other trees. This is not without precedence. Back in 1997, I drove from Summit to Eagle Butte and found almost all the ash along the highway presenting this same symptom as a

result of cold weather.

When I stop for a site visit to inspect these trees the canopies are in various stages of leafing out. There are limbs in full leaf, while others are sprouting leaves now and a few are still bare. When I pull the bark back on these bare branches the wood is still green and moist, just the buds died.

When I stop in Sioux Falls, there I can find emerald ash borer infested trees presenting similar symptoms of crown thinning. However, on these trees I also find the telltale signs of woodpecker drills and some blanding of the bark.



Emerald ash borer update

Emerald ash borer adults are beginning to emerge from their D-shaped holes. They are day-fliers and will lit on the warm, sunny parts of the tree. This means you usually do not find them along the shaded lower trunks or dense interior canopy of the tree. The initial attacks tend to be found in the sunny, upper canopy and only as the tree begins to thin and more sunlight penetrates to the trunk, do we see substantial attacks at the height, 5 or 6 feet, that people can see them.

Emerald ash borer does spend considerable time walking on the bark. They are usually out between about 10 am and 3 pm and when the air temperature is above 70°F. They are not very good at social distancing as they are looking for a mate during these walks so you might come across two. They often do not fly away if disturbed but instead drop so you can catch them if you cup your hand against the bark beneath them and tap them with your finger – they just fall in (they are like possums and pay dead).

They only live for a few weeks or so, but new borer will be emerging over the next two months. The expected peak of emergence is usually the third week of June, about the time lindens are in bloom.

Twig blight on junipers

Cercospora twig blight is appearing on junipers across the central part of the state. This is one of the trilogy of needle blight on junipers along with Kabatina and Phomopsis. Collectively these are referred to as twig blight.

Phomopsis and Kabatina twig blight have similar symptoms. The shoot terminals go from a normal bright green (or bluish-green) to yellow then gray. Kabatina symptoms appear in very early spring, usually April, and do not progress into the season. You will see the shoot tips turn yellow and the new growth later in the spring develops its normal color. Kabatina infection occurs through wounds in the fall and there are no fungicides available to manage this disease.



Phomopsis twig blight has a similar color change to the tips, from normal green to yellow then gray but the infection and color change begins later, May, and the new growth that continues to form in the summer can also become infected and turn color. Generally older foliage is resistant so the disease is often limited to shoot tips but entire branches can become infected as well. The symptom pattern generally begins near the top of the evergreen and then progressing downward. Phomopsis infection begins in the spring and the disease can be managed with fungicide applications, mancozeb is

often used (copper also works), beginning in early June with repeating treatments about every two weeks until the new growth slows. This usually occurs in July as the weather turns dry and growth stops.

Cercospora is caused by the fungus *Pseudo-cercospora juniperi*. The symptoms first appear on the lower branches which differs from the other two twig blights. The affected needles turn a dull brown by early summer before becoming gray and dropping. The disease progressively moved from the base to the top of the evergreen as well as from the branch base to the tip. Infected junipers will become thin and open – almost as if they were scorched by fire. This is more a problem on Rocky Mountain juniper than eastern redcedars and repeated years of infection can kill these evergreens. The most common treatment is fungicide applications of mancozeb or copper. The first application should be made now (last week would have been better) with a second in two or three week and a third in mid-July if the weather stays wet.



There is no law that a juniper cannot have more than one of these pathogens and often the only way to tell which is to examine the fruiting structures and spores. Fortunately, the treatment window for Phomopsis and Cercospora are very similar so managing one disease really manages both.

E-samples

Ash rust



Ash rust (*Puccinia sparganioides*) is appearing on ash throughout eastern South Dakota. This is causing some concern as people are noticing these bright yellow depressions on the upper surface of the leaves. There will soon be raised orange spots on the undersides.

Most rust disease require an alternate host. The pathogen moves back and forth from one host to the other and if one is not present, the disease does not occur. The alternate hosts for ash rust are marsh and cord grasses and we have an abundance of these in eastern South Dakota. The disease overwinters on these grasses and spread to the ash trees as they leaf out. The trees are about to return the favor as the orange aecia (fruiting structure) will be releasing spores that will infect the grasses.

Severely infected ash may have their leaves, both the leaf blade and the petiole, become twisted and distorted. Some years even the small twigs have been affected. I expect to start receiving calls in the next few weeks about bent and curled falling leaves.

It is too late for any effective treatment for the disease as the leaves are already infected. Any fungicide should have been applied as the leaves were emerging. Generally, fungicide treatments are not advised as most years we do not see the disease. It just depends on how wet the weather is while the ash leaves are expanding.

Monster wasps – the elm sawfly



Elm sawfly (*Cimbex americana*) adults are flying and people are worried about these stout monster hornets. They have a “stinger” but no worries. They use it for cutting slits in leaves, not skin!

The adult females “saw” a slit in the leaves to lay eggs and these eggs will start hatching in early July. The larvae are also big and can become almost two inches long. They feed along the margins of elm and willow leaves, usually in groups, and I have seen some young trees almost completely defoliated by August. Once the larvae are finished feeding, they drop to the ground to pupae with the adults emerging the following spring. The insect does not appear in large numbers every year, nor is it widespread though this year it seems to be showing up in the southwestern and northeastern part of the state.

Leaf blisters on cherry



This picture came in of blisters on chokecherry leaves from the Rapid City area. The most likely cause for these deformations is the fungus *Taphrina*. There are many *Taphrina* that cause disease from oak leaf blister to peach leaf curl. The symptoms are blister-like distortions in the leaves. Affected cherry leaves may also curl downward and sometimes develop a reddish tint.

The blisters are caused by abnormal cell division and enlargement caused by secretions by the pathogens. The blisters do not harm the chokecherry, mostly just a little less photosynthesis. They just do not look very pleasant.

Samples received/site visits

Corson County

Dying Siberia elm in a belt

Many parts of the state no one cares about Siberian elm, *Ulmus pumila* (often mistakenly called Chinese elm, but that is *Ulmus parvifolia*). It is considered a weed tree, a tree that seeded in that no one wanted. But those folks don't live in Corson County, a land trees go to when they did something bad in a previous life. It is either too wet or too dry, too hot or too cold and the soil is the classic gumbo. A great place for this tree where it has value in yards and windbreaks.

The tree belt I was called out to had a row of the indestructible Siberian elm and most were dead or near death. The trees had experienced a one-two punch. First, Siberian elm, despite its hardiness, is easily killed back by seasonal temperature fluctuations. The Halloween Freeze of 1991 resulted in the loss and dieback of thousands of Siberian elms, which was a repeat of the Armistice Blizzard of 1940.

But this was not the only problem. The knock-out punch was voles (*Microtus* spp), also known as meadow mice. These small (3-5 inches long) rodents feed on grasses and seeds. They also serve as food for foxes, hawks, and owls.



Late fall to early spring their tastes turn to woody plants and they will burrow through tall grasses and forbs or snow to gnaw on the lower trunks of young trees and shrubs. Junipers (cedars), pines, and elms seem to be their favorites in windbreaks. Once they gnaw completely around the lower trunk, the connection between the leaves that manufacture food and the roots that require it is severed and the tree dies.

The way to tell if a vole is to blame for the damage is look at the gnaw marks. Voles have tiny teeth so the individual tooth marks are about 1/16-inch wide (bunnies are about twice the width). The marks for voles are irregular and at various angles.

Vole management begins with habitat modification. Since everything likes to eat voles eliminating hiding cover helps reduce the population. In the fall mow between the strips and try to clean the weeds out around the stems. Toxic baits, used in bait stations to prevent harming nontarget critters, are effective but these are best placed in fall and spring when the voles have little available food other than trees.

Fall River County

European elm flea weevil



If you look at elm leaves right now you might notice these light-colored blotches on the foliage. If you hold these damaged leaves up to the sun, you can see light through these blotches and within these blotches dark thread-like creatures. These are the larvae to the European elm flea weevil (*Orchestes alni*). This insect was first confirmed in the U.S. in 1982 but was not found on the Great Plains until 2007. Now we can find it across the state.

The adult insect is a tiny weevil, about 1/10-inch long. It is reddish brown with black spots and a long snout. The large back legs allow it to jump (like a flea) so they can be hard to catch. The adults live through the winter and could be found on the foliage about a month ago laying eggs along the margins. The eggs have now hatched, and the young larvae have burrowed into the leaves to form these mines.

This insect is not a tree-killer, but it can make almost every leaf on a tree look like Swiss-cheese with the blotches and holes. They are a little choosy of which species of elm they munch on with Siberian elm their favorite. They will also feed on any of the hybrid elms that have Siberian elms in their parentage, so we see damage on 'Cathedral' and 'Regal' elms.

Fall River County

Pine needle scale



I have been receiving calls in the southern Black Hills about white bumps on spruce needles. I stopped at one of the properties with Matt, a forester with the South Dakota Department of Agriculture. It was probably one of the heaviest infestations I have ever seen! Every white spruce in the row (and it was a dense row) was covered with thousands of small white tear-shaped bumps. These are the female shells of the pine needle scale (*Chionaspis pinifoliae* or *C. heterophyllae*).

Right now, the young crawlers have crawled out beneath the shell of their dead moms and are scurrying out to the new needles. They will find a nice spot to settle down and feed. They insert their beak into the needle and suck the contents out. They also lose their mobility – real couch (needle) potatoes – and remain stationary for the remainder of their lives feeding from that one spot. They also form a white, waxy armor shell and the females



(which are all the white shells) lay eggs beneath this shell.

There are two generations per year. The first generation hatches beginning at about 400-500 growing degree-days (when common lilac blooms), which most of the state exceeded last week, and the second hatches out at about 1,400 growing degree-days which we usually see in August (we usually see only a single generation of *C. pinifoliae*, *C.heterophyllae* which is less common in the state has the second generation). The time to act is when the young crawlers are out and just beginning to feed. Treatment window is now but rapidly closing.



Summer (superior) oils are one of the most common treatments for pine needle scales. These are non-toxic to people but will suffocate the young crawler if they become covered with the oil. They also cause little harm to all the insects that feed on the scale. Insecticides such as Distance (a pyriproxyfen) are an insect growth regulatory and have low impact on the natural enemies.

The best management for these insects is to allow their natural enemies to do their work. Apparently crawlers are tasty and lots of ladybugs find them to be a great meal. They can munch their way through about 70% of the population. This is the reason, most contact insecticides are not recommended for treating pine needle scale. They will kill as many (or more) of the natural enemies than the scale.

Hyde County

Juniper twig blight

It seems like there are numerous reports of declining juniper (cedar) belts across the central part of the state. These cannot always be traced to a single agent. Some portions of these belts are declining as they have been starting in water during the last two year, others have succumbed to freeze injury from the late frost. However, the previous two wet summers provide the perfect environment for foliage diseases to flourish and we are seeing infections by *Phomopsis* and *Cercospora*. See more information on these diseases under Timely Topics in this *Update*.

Walworth County

Dying American elm

I am receiving more, and earlier calls, about dying American elm trees. Usually the new infections for Dutch elm disease do not present until July. This year I started seeing flagging, the yellowing and wilting of leaves along shoots, in early June. The season is starting early.

Dutch elm disease is due to a vascular fungus that disrupts the movement of water from the roots to the crown, hence flagging being a common symptom. The

disease is generally fatal to North American elms (American elm, Rock elm and Slippery elm) though a percentage of these populations show strong tolerance to the disease. Many of our Asian elms have strong resistance to the disease and never present symptoms of an infection.



The disease is carried from infected to nearby healthy elms through bark beetles that carry the spores to new hosts and root grafts between trees within 50 feet of one another. One key means of management is the prompt removal and destruction of infected trees to help reduce the spread. Many communities have ordinances requiring these elms be removed in a timely manner.

American elm can also be protected with trunk applications, an infusion, of a fungicide containing thiabendazole, commonly sold as Arbortect 20-S. This must be performed by a commercial applicator and the treatment is repeated every three years. It is highly effective, if continued, and

we have trees that have been treated for more than two decades that are now the only elms left in the neighborhood.

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