



Tree Pest Alert



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In This Issue

Plant Development.....	1
Treatments to <i>stop</i> now.....	1
Timely topic.....	2
Emerald ash borer update.....	2
Downy woodpeckers, the pointers of the EAB world.....	2
Ash tree removals continue.....	2
Douglas-fir, another evergreen tree for South Dakota.....	2
E-samples.....	3
Emerald ash borer in ash tree.....	3
Juniper berries.....	3
Samples received/site visits.....	4
Meade County (pine engraver beetle).....	4
Moody County (fabric embedded in spruce).....	4
Pennington County (oystershell scale in ash).....	4

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: Carrie Moore, and Dawnee Lebeau

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Plant development for the growing season

We are at 22 growing degree days (GDD, base 50) in Sioux Falls now. We have not had much warm weather in the past two weeks but there were a few cold periods. It was -10°F on Feb. 25 and -3°F on March 10 in Minnehaha County. This was within the survival range of emerald ash borer so unless something drastically changes in the next week or two, we can expect a lot of beetles flying in June.



The forecast is for warm days with communities across the state expected to see daytime temperatures above 50°F for rest of the month. The combination of warm days, cool nights, and cold soils means that the sap will begin to flow. There are reports from Nebraska that the sap was a trickle last week during the cold weather – it should be flowing this week!

Treatments to Stop Now

A treatment to stop now is the application of deicing salts to our sidewalks. This is the time of year where we see a lot of icy walkways. The days are warm enough for some melting which quickly freezes again that night. This means we are usually skating on the walkways in the morning.



Some people have been pouring the salt on to break up this ice. It is not necessary. At this time of year, the ice

film will mostly melt from the morning sun. It might be better to push the snow back farther from the walks to reduce meltwater.

If deicing salts have been used, once the snow is completely melted (which has already happened in some of the dry areas in the state) and the temperatures are in the 50-60°F range, rinse off the salt residue from the buds of deciduous shrubs and the foliage of evergreen shrubs near the walkways with a light stream of water. Also, once the soil thaws to 6 inches, soak the soil to remove some of the salt near the surface of the ground.

Timely Topics

Emerald ash borer update

The short dips into subzero temperatures have not been deep enough or long enough to kill many overwintering emerald ash borer larvae. Most of these are in their J-shaped forms deep in the sapwood and well protected from the winter cold. Our sampling still shows white, live larvae beneath the bark.



Downy woodpeckers, the pointers of the EAB world

There are dog breeds that are good pointers, pointing in the direction of small game. The objective is to let the hunter know where to expect the game and move into range.

Downy woodpeckers have a similar function in the EAB world. They do not point to the game; however, they drill into them. Downy woodpeckers among others develop a taste for emerald ash borer larvae once they learn of this new food source. They will search along the bark of infested trees and once they locate their prey beneath the bark, drill in and snatch the larva. The search process involves the pecking away of the outer layer of bark leaving the lighter layer exposed; a phenomenon referred to as “blonding.”

I found this downy woodpecker searching along the limbs of a large ash tree. Large patches of the bark were already blond, and there were drill holes through the blond wood. Since woodpeckers are better at finding infested trees than we are, now is the time to go out and see if there is woodpecker activity in ash trees and the presence of large patches of blond wood. Woodpecker

activity and blond wood is a good indicator of an infested tree.



Ash tree removals continue

The lack of deep snow but frozen soils are making some great opportunities for removing infested ash trees. This was a large ash that was part of a group recently removed in Canton. The blonding was evident throughout the pile and there were numerous cavities showing the S-shaped galleries of EAB from old attacks.



Now is a great time to get these trees down before the adults emerge and begin flying in early June. An important reminder, the adults will still come out of this wood once it is on the ground. Merely cutting the wood into smaller, firewood-size pieces will not prevent emergence. Just removing the bark will not prevent emergence as the larvae are in their overwinter cells in the outer sapwood.

If the wood is kept it should be chipped to pieces that are no larger than one inch in the longest dimension. This will kill most, if not all, of the overwintering insect. Regardless of treatment, raw ash wood cannot be transported outside of Lincoln, Minnehaha, and Turner Counties at any time of the year.

There are exceptions to this restriction, but only by permit from the South Dakota Department of Agriculture and Natural Resources.

Douglas-fir, another evergreen tree for South Dakota

I was up in Lemmon last week, talking about trees at their home show. I mentioned that we discovered pine

wilt in the area last year and now non-native pines in the entire state are vulnerable to this lethal disease.

The disease, caused by a small nematode, the pinewood nematode (*Bursaphelenchus xylophilus*) and its associated bacteria and mites, has been gradually moving northward over the past decades. The disease is fatal to our non-native pines and is rarely a problem with our native trees. The two most common hosts of the disease in South Dakota are Austrian and Scotch pines. I took this picture of an infected stand of Scotch pine near Mina as I drove home from Lemmon.



This means we have two fewer conifers to plant in the state. So, what else can be planted. Douglas-fir (*Pseudotsuga menziesii*) is an overlooked choice for a tall conifer. The tree has flat bluish-green needles and a pyramidal form, like a fir (*Abies*).

Douglas-fir can be found throughout the state. We have tall specimens in towns from Aberdeen to Yankton. There are also trees in Lemmon and Selby (pictured). You can also find old ones in cemeteries. The tree seems to have been forgotten, but there is some renewed interest in planting them.



While Douglas-fir can be found throughout the state, not every Douglas-fir is adapted to our state. Douglas-fir from the southern part of its range in the southern Rocky Mountains and west to the Pacific Coast along British Columbia and Washington are not hardy here. The best

seed sources for the northern Plains come from mountains of central Montana.

Rocky Mountain Douglas-fir is the name given to these northern seed sources (*Pseudotsuga menziesii* var *glauca*). The tree can tolerate USDA Hardiness Zone 4 winters and slightly alkaline soils (up to a pH of 7.5). They are best adapted to windbreak suitability groups 1 and 3.

There are no perfect trees, and this is true for Douglas-fir. While there are hardy seed sources for our state, the tree is not as tolerant of winter winds and exposure as pine. While it will perform well on many sites, it is not for every site.

E-samples

Emerald ash borer galleries

I received this picture of old emerald ash borer galleries from a tree company pruning and removing trees on the edge of Sioux Falls. The size of the callus rolls along the edge of the wound indicates the tree has probably been infested for a couple of years.



What surprised the tree company was that the trees in the neighborhood were not showing any signs of emerald ash borer. There may be no signs of attack for the first year or two. Infested ashes are tough enough that for the first year or two, they can survive the vascular disruption of the tunneling with few outward presentations. The woodpeckers might also take some time to find the new source.

Therefore, emerald ash borer infestations are usually far worse than they appear. If you find a few infested trees there are always more in the vicinity.

Juniper berries

The question was if they removed all the male junipers would that harm the female trees? Junipers are dioecious, meaning there are trees that produce male cones and others that produce the female cone; the bluish-green compressed cone we call a berry. They wanted to remove the males because of the pollen dust in the spring. The pollen can cause an allergic reaction like hay fever symptoms known as cedar fever.

Removing the male trees to reduce pollen will not harm the nearby female trees. They may be a little lonely and not produce their cones – the berries – but will be just fine.



Samples received/Site visits

Meade County, Engraver beetles

This was a visit to a recent timber harvesting operation. When the trees are harvested, the bole is taken to the mills and the branches, twigs and needles left on the forest floor as slash. This is not a wasteful use for this material. Most of the elements stored in a tree are in this finer material, not the trunk. Scattering this material on the forest floor is a means of recycling as the elements are returned to the soil as the branches, twigs and needles decompose.



This fresh slash is also attractive to pine engraver beetles. The beetles are attracted to the volatiles released by the recently cut material. They need fresh phloem to raise their young.

The adult engraver beetles overwinter in the duff beneath the trees, though some spend the cold in the trees. This spring once we have the daily maximum temperatures consistently in the 60°F's, they will begin to fly to seek out fresh, fallen material to burrow into and lay eggs.

While the fresh slash is attractive to the beetles now, it may dry out enough in the next few months that it is no longer suitable to subsequent generations of beetles. These newly emerged adults move to nearby trees to

attack. If we are still in a drought, these trees are weakened and are vulnerable to attack.

It is not a good practice to create slash from February through June. The material will be fresh enough to attract beetles but will dry out too quickly to support future generations. This means beetles are attracted to the site and expand their population that later moves to the trees.

Most of the harvesting occurred last fall and that slash will be too dry this spring to attract the adults. Any material cut later than now will be attractive to beetles. The material cut in January and February can still be fresh enough to attract beetles this spring.

They reduced the possibilities of this by cutting the slash into smaller pieces so it will dry out sooner. The slash was also scattered to further increase drying. Finally, the slash was trampled which shredded off the bark and broke the material into finer pieces.

Moody County, Fabric in spruce

This call was to a windbreak of Colorado spruce that are about 12 feet tall and about the same number of years since planting. The trees had been putting on good growth, even during the drought the past two years. But now some are suddenly turning color and the needles at the tips drying and falling.



The trees that were shedding needles also had fabric embedded in their trunk. The tree owner mentioned that the trees were so little when they were planted, he did not think about the size of the opening in the fabric. The fabric was forgotten after a few years, and much was covered by soil beneath the trees. The combination of shade and soil prevented any degrading of the material. Since it is still as strong as the day it was installed, it is not tearing as the tree trunk expands and so it becomes embedded.

Pennington County, Scales in ash

This ash was declining with many branches showing dieback. The owners were concerned it might be emerald ash borer. It was not, fortunately. The reason for the decline of this young ash tree, and other nearby young trees, was oystershell scale (*Lepidosaphes ulmi*).

This is one of the most destructive scale insects on broadleaf trees. The most common hosts are ash, aspen, lilacs, poplars, and willows. Ash and aspen seem to be the most popular meal for these insects in South Dakota.

The adult female scale is the one most seen. The adult scale is about 1/8-inch long, gray to brown with the general shape of an oyster. Since the small bumps have a similar color to the bark of ash and aspen, populations of the scale can become large before they are noticed. Usually what is noticed first is the dieback of shoots and branches in the canopy.



The near invisible young, called crawlers, and the adult females suck sap from the tree. The eggs are now beneath the shell of their dead mom. They will start hatching at about 350 GDD, about the time Ohio buckeyes begin to bloom, with hatch continuing to 500 GDD.

The crawlers scurry out on the new shoots and pierce the bark with their mouthparts and begin to suck sap out of cells (but not directly into the phloem so no honeydew is produced). The crawlers are yellow and barely visible to the naked eye. They lose their legs once they begin to feed and remain stationary for the rest of their lives (the original couch potatoes!).

The crawlers gradually develop a waxy covering and eggs are laid beneath this new scale in the fall (there are no males, eggs are produced asexually). There is one generation per year.

The populations are kept in check by their numerous natural enemies. The heaviest infestation I see are on trees in communities with routine mosquito spraying. There may not be a cause-and-effect but there have been studies that have linked widespread mosquito spraying to increase in scale populations. The sprays not only kill their intended target, the mosquito, but the insects that feed on scale.