

# Pest Update (October 17, 2018)

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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, instead 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

The growing season has come to an end and trees are beginning to lose their leaves as the temperatures drop and the winds rise. We do not see many new pest problems at this time of year, pests as with trees are beginning their long winter nap.



Hackberry split by snow.

Unfortunately, South Dakota weather is never taking a nap and is always subject to the unexpected. This materialized as a snow storm in northeastern South Dakota last week and while it did not last long, it was heavy enough to result in some split trees.

I received pictures of two split trees. These splits are the result of codominant stems forming. These “double leaders” have very weak connecting tissue. All it takes for these trees to split is a little snow or ice loading. Unfortunately, once the damage is done there is little corrective action that can restore a canopy. The snow load was also heavy

enough to break branches.

The taller hackberry may recover with some corrective pruning. If the torn branch stubs are cleanly pruned off and there is no other damage to the one leader, the tree may recover. There is little hope of the smaller maple ever becoming a structural sound tree and its probably best to remove it and start over next spring.



Maple split by snow.

## Timely Topics

### Boxelders and Seasonal Pasture Myopathy in horses

Along with the falling leaves and seeds comes the concern with seasonal pasture myopathy (SPM). This is a muscle wasting disease that occurs in horses during autumn. The disease results in severe muscle damage, including the respiratory muscles, and is fatal in more than 75% of the cases.



The winged seeds of a boxelder.

The disease has been known for several decades and there were multiple causal agents investigated for this fatal disorder. The problem appears to be the seeds of the female boxelder (*Acer negundo*) tree specifically two of its compounds, hypoglycin A and B. These are compounds found in some other soapberry family plants and are responsible for poisoning in humans, the Jamaican Vomiting Disease, from

eating ackee fruit (not found in South Dakota fortunately).

The concentration of the hypoglycin found in boxelder seed varies among individual boxelder trees so some trees are more toxin than others. This is one reason why boxelders may be found near a pasture, yet no cases of SPM occur in horses. The problem is more common in dry years as there is not much grass left in some pastures by autumn and horses start looking for something else to nibble on. Overgrazed pastures present the same problem.

Some years boxelders produce seeds more than other years. This year appears to be an “on” year as trees are covered with clusters of the dry, winged seeds. Not all boxelders produce seeds as some are males.

The best advice for horse owners is to check for boxelders and seeds around or in their pastures. If many seeds are found, it may be best to avoid using the pasture this fall. This is especially important for young horses as they are more predisposed to SPM, perhaps due to size or they have not learned to avoid the seeds.

### **Bronze birch borer and problems with Asian birches**

Emerald ash borer is not the only *Agrilus* found in our state. We also have the bronze birch borer, *Agrilus anxius*, and, as the name implies, this is a serious pest of birch. However, there are several important differences between the two. Emerald ash borer is an exotic pest, native to East Asia, that are native ash species have limited tolerance against. The bronze birch borer is a native insect and our native birch have tolerance against this pest.



An Asian white birch.

Bronze birch borer is regarded as a “secondary pest” only able to successfully colonize a birch once it begins to decline. This is also true of the emerald ash borer in Asia where it is only successful on Asian ash when the trees are stressed by age, drought, or other agents.

Our native paper birch (*Betula papyrifera*) and the gray birch (*B. populifolia*) have tolerance to this insect and the borer only becomes a problem when the tree is planted on a droughty site or is not irrigated regularly during a dry summer. However, the European white birch (*B. pendula*) and the Asian white birch (*B. platyphylla*), among other exotic birches, are attacked regardless of their vitality.

This is not an unexpected outcome. As has been documented numerous times, tolerance generally occurs when the pest and tree share an evolutionary history, they grew up together so to speak and have reach a stand-off where the pest is only able to succeed when the tree is already declining.

When the tree is faced with a pest to which it has no previously relationship, it may have few or no defenses to counteract the threat. It never had the need to create them and has no means to quickly make them. This is the dilemma that our North American ash now face – the emerald ash borer recognizes them as ash by their volatiles (they smell like an ash), but our ashes have limited defenses against this exotic threat.



Bronze birch borer larva galleries appear as a raised area on the bark.

A similar situation with birch but the problem is reversed in this country. Our native bronze birch borer recognizes Asian and European birch as birch (they smell like birch), but they have limited defenses against this insect.

Despite this, we continue to see new Asian birches released as “bronze birch borer resistance” yet this usually is proven false within a few years. We have seen that with planting of some of the newer cultivars. They are borer free for the first 10 years or so but after that become infested by the borer. It is best to plant our native birch species or their cultivars to avoid the problem.

## E-samples



White pine 3<sup>rd</sup> year needles turning yellow.

I am receiving pictures of conifers, mostly pine but some spruce, with yellowing needles. The yellowing is only on the interior needles and this is the normal seasonal needle drop that occurs on conifers. Evergreen does not mean forever green and pine typically shed their third-year needles in autumn and spruce their five through seven-year old foliage. If we have a sunny autumn, the foliage becomes almost straw yellow before dropping.

## Samples received/Site visits

Lawrence County

### What should be done about this scale?



Adult female pine needle scales on white spruce.

This is the pine needle scale (*Chionaspis pinifoliae*), a common scale insect of pines and spruce. The insect sucks the sap from the needles. This causes some localized discoloration around the feeding site. Dense infestations (more than three or four scales per needle) can result in the needle shedding prematurely and if enough needles are shed, the supporting branch may die.

The picture is of the adult female scale. She is almost pure white (a little yellowing at one end) and teardrop shaped. The adult scale is also sessile, meaning immobile. At this time many of the scale on the newest needles are dead but there are also scales that are still alive and maturing eggs, but all these scales, the recently dead and alive, will have eggs beneath them come spring. The eggs hatch about the time common lilac are in full bloom.

The hatched young, referred to as crawlers, are very mobile and will crawl out to the new foliage, insert their mouth parts into the needle and start sucking sap. After about a week of feeding they settle down and develop a yellowish color. This is the hyaline stage. After about six to eight weeks, they form a hardened shell as they become adults (at least the females, the males form wings). There is one generation per year in most of the state but in the southern areas we do have some that complete a second generation within the growing season. Regardless of one or two generations, the adult female and eggs are the overwintering stages.

There are lots of natural enemies of this scale and usually they provide adequate control. A parasitized scale is easy to spot as there is a hole in the shell when the adult parasitoid emerged after feeding on the scale. Sometimes there are jagged tears in the scale where a predator, such as a ladybeetle larva, has fed on the scale. However, there are no signs of either natural enemy on the needles submitted as a sample.

Heavily infested trees can be treated with a horticultural oil about a week after full bloom on common lilac. This is very effective at suffocating the crawlers but does little harm to its natural enemies. The problem with oils is they can damage needles if applied on hot (about 85°F) days. Oils will also remove the blue from a Colorado spruce. A second application may be made about two weeks later.

Conventional insecticides such as Carbaryl (Sevin), may be sprayed instead, but these will impact the natural enemies. If these are used, it may require two applications spaced about 14 days apart.

Minnehaha County

### Are these trees infested by the emerald ash borer?



A row of old, dying green ash – a common sight in SD.

This was a question from a group that was planning to remove some old, declining ash to use for firewood. Since the trees are in Minnehaha County, where emerald ash borer was found this spring, they wanted to know if these trees were infested. A common means of spreading emerald ash borer is through infested firewood so I understand their concern.

This appeared to be a grove of old ash dying because they were old ash, not due to an emerald ash borer infestation. There were

also numerous exit holes and galleries on exposed wood from our nature borers, the banded and redheaded ash borers and the carpenterworm. I did not see any signs or symptoms of emerald ash borer and considering they are more than 15 miles from the only confirmed site, there is probably a very low possibility these trees have the borer.



The oval emergence holes for adult banded ash borer.

However, this is also why we have county quarantines – just in case they are infested. Raw ash wood, firewood, planks, etc., cannot be moved out of the quarantine without a permit – period. If everyone observes this regulation it will help slow the spread of emerald ash borer into the surrounding counties.

Any ash cut for firewood within the quarantine area can be moved within the county, but it is still a good idea to use it at or near the site the tree was felled. This will help to slow the movement within the county.

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