

# Pest Update (February 6, 2019)

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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



Wow, we have had too many days and nights with temperatures dipping to the -20s or lower. While this was cold to us, it was not cold enough to kill all the emerald ash borers snug beneath the bark. We are planning to do our larval mortality survey soon and will report the findings in the next *Update*.

## Timely Topics

The cold is relentless this year (and I thought they were predicting a *warmer* and *drier* winter than normal on the Northern Plains). As mentioned in the last Update, these are good emerald ash borer killing temperatures BUT these cold temperatures also kill the natural enemies of the borer (that were released in Sioux Falls last summer and fall) and it's a stress on the ash – it's a wash.

This means while we can welcome the slight reprieve the cold is providing us in slowing the borer's population growth, we need to stay the course and stick with the program of treating high-value ash and removing low-value ones.

One of our best examples of employing this strategy is St Michael Catholic Cemetery in Sioux Falls. There were almost 100 large ash (12 to 56 inches dbh) on the grounds last year. Many of these trees provided substantial benefits to the cemetery. The removal of any of these trees would require decades for a new tree to replace their size and stature. About 50 of these trees were good candidates for protecting from the borer and Arborjet donated their time and material to treat these trees.



St Michael Catholic Cemetery in Sioux Falls after the removal of the old, declining ash trees



Some ash were poor candidates for treatment due to defects.

The other ash trees, the ones with extensive defects, were scheduled for removal this winter. The removals are almost completed though a few are still scheduled. The cemetery does appear more open now, but mostly to those that saw it before the removals. Planting new trees – no maples, Sioux Falls has too many already – and caring for many of the larger trees will ensure the grounds remain attractive.

The removal of thousands of ashes in Sioux Falls and across the Northern Plains is generating a tremendous quality of ash wood. Many communities are utilizing the wood as chips as an energy source in generating power, but others are taking some of the wood to use as lumber.

White ash is usually preferred over green ash, primarily for its lighter sapwood, though both are often mixed and sold together. The wood looks very much like red oak, except lacking the large rays, and is sometimes substituted for flat sawn oak boards. Ash wood is used for exposed surfaces for cabinets, chairs and even flooring. The wood also has high shock resistance so was the choice wood for baseball bats. Many bats are now made of maple (more durable than ash, but heavier) or birch (more flexible than maple and harder than ash).

However, with the loss of ash to emerald ash borer, many markets see a “wave” of ash wood as the outbreak accelerates through a community. Once almost all the trees are gone, usually within ten years, then the ash market crashes due to the lack of local material.



Blue-stained pine board.

We saw a similar trend with blue-stain pine. During the mountain pine beetle epidemic (1990s – 2010s) millions of trees were attacked and killed by the mountain pine beetle. However, the beetle did not swiftly kill the tree alone, they had help from fungi they carried from tree to tree. The fungi provided food for the developing beetles and aided in the rapid death of the tree by plugging the tubes that

carried water. The beetle and the fungi killed a tree within a year of the attack. There was, and still is, considerable debate as to which was most responsible for the tree’s death but it’s an academic question as they are always found together.

Blue-stain is caused by several different fungi and the color resulting from the infection can range from gray to almost purple. The infection has no effect on the strength of the wood and this wood is not inferior lumber, however the public often considered it “moldy” and refused to buy it.

This created a problem in the Black Hills and much of the West as there was little market for the tremendous quality of beetle-killed tree due to the staining. Many of these trees were not harvested but left to fall or were felled and “cut and chunked”, a solar treatment to promote the rapid drying of the wood which prevented the beetles from completing their development.

The mills did harvest some of this wood and it was marketed in some areas as denim pine. Many people began to develop an appreciation for the colorful wood and its artistic value for paneling and demand for the wood increased. Now that the epidemic is over, the quantity of blue-stain wood has also disappeared – at the same time demand for the wood is high! A building in South Dakota recently

looked at using blue-stain paneling for some large rooms but discarded the idea as the material was more expensive than oak!

## E-samples

### *Discolored needles on ponderosa pine - update*



I received a picture and a follow up sample of some ponderosa pines in the Spearfish area. The declining trees have a host of problems including red turpentine beetles and gall rust. These are not usually tree-killers but are found on susceptible hosts. The needles appear to be off-color, a lighter green and the needles submitted as a sample are covered with fruiting bodies. In the last Update I mentioned we would be looking at these closer and report our findings.

The results are in and the small fruiting structures on the foliage were from saprophytes, fungi living on the dead and dying tissue rather than being the cause of the necrosis. There must be some agent, abiotic or biotic, in the twigs, branches or trunk – that is responsible for the decline. I will stop to look at the trees on my next trip out.

## Samples received/Site visits

Hutchinson County

### **What are these on the twigs?**



Those are needles, just very short ones forming what we call a bottlebrush. There is nothing wrong with this seedling. The trunk has the normal greenish-white sapwood and the current needles are of average length along with the shoot growth. What is abnormal is the previous (2017) season's needle length. However, this is no cause for alarm.

Spruce have preformed growth, meaning the conditions from the previous year determine the growth for the current year. All the needles that were going to form in 2017 were already in the buds that opened that year. Since the tree spend the previous year (2016) in a nursery growing in almost ideal conditions – adequate water and nutrients - it was programed to grow a lot of needles in 2017.

What the seedling did not know is that it was going to be pulled from the ground and planted in a new windbreak under less than ideal conditions so the tree experienced moisture stress. The tree could not change how many needles to produce, that was already predetermined, but it could reduce the shoot and needle lengths for the year.

During 2017 the tree readjusted its expectations for the future and the buds were programmed to produce fewer needles for 2018. The growth that came out in 2018 was for fewer needles and since 2018 had abundant moisture all the needles grew to their normal length.

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