

Pest Update (April 4, 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 particular 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

Will winter ever end! Much of the state enduring another snow storm this week and it looks like we are in for one more cold weekend. Fortunately, we have not had to many days of warm weather prior to these cold snaps. Our trees and shrubs have

remained dormant rather than breaking bud prematurely and being killed back by the cold.

Timely Topics

Mountain pine beetle and pine engraver beetle

The mountain pine beetle epidemic has run its course, as it has done several times during the past 120 years. These epidemics are not periodic, occurring at regular intervals, but at irregular time periods. Once an epidemic starts they run about a decade or two before declining. What causes epidemics to start and end is a debate among forest entomologists. Favorable weather – hot, dry summers – and a buildup of natural enemies play a role, but the one factor all are in agreement is you cannot start and sustain an epidemic until you have a lot of large trees. As the average tree size and stand densities decrease fewer beetles emerge and they have less success at mass-attacking trees. It seems that once the Black Hills forest has a significant portion of it impacted by the beetle, the epidemic comes to an end.



I looked at only *one* mountain pine beetle attacked tree this winter and it was last week. The tree was attacked last summer and it was not a successful attack as evident by the large, white pitch masses. Only this one tree in the stand was attacked and it was the tree that had the top break out in a storm two years ago. In the interim period between epidemics these are the trees mountain pine beetle has



the best chance of success and even here they are not always successful.

However, the end of mountain pine beetle does not mean we are done with bark beetles. The pine engraver beetle *Ips pini* is another native bark beetle to the Black Hills. It usually attacks only trees that have recently died or branches in the tops of dying or hail-damaged trees. The insect will also infest fresh logging slash during the spring and summer. However, the beetle can become a tree-killer during periods of drought which weakens pine defenses, the resin the tree uses to pitch the beetles out as they attempt to bore in.

It's usually not much of a concern, but the lingering drought has left many trees vulnerable to attack. I was out in the Black Hills last week and visited a number of neighborhoods in Rapid City and the surrounding area that had pines infested by the pine engraver beetle. The request for visits was usually because homeowners noticed a few of their trees were being attacked by woodpeckers.



These birds will search for insects residing just beneath the bark and it was common to find pine infested by mountain pine beetle with bird pecks so dense the bark was shredded off.

These trees were heavily infested by pine engraver beetles as well as several other species of wood borer and even some *Pityophthorus* beetle which resemble engraver beetles. The drought had weakened the trees to the point that they have few defenses and are easy prey to a host of beetles. Unless we start getting good rains, these trees may die, but if the engraver beetles are not managed, the trees will die. There are quite a

few home associations and individual homeowners that are planning to have their trees sprayed to protect them against new attacks.

Unlike the mountain pine beetle which does not emerge from its host as an adult until late July, the pine engraver beetle is an adult right now. It can be found either beneath the bark of declining trees (it's the tiny insect within the yellow circle, the oval hole above it is from a wood borer) and logging slash or even in the duff on the forest floor. They resemble a small mountain pine beetle and I used to receive calls in the spring of "mountain pine beetles" flying earlier that were just pine engraver beetles



The pine engraver beetle generally begins flying in mid-April depending on the location. It usually appearing first at lower elevations in the southern Black Hills and later in the higher elevations of the northern Hills. The cold weather the Black Hills is experiencing right now (along with the rest of the state) is cold enough to keep the adults from flying. They generally begin their flight when we have day temperatures staying in the 60° and 70°F. That's sounds like the weather next week.

The adults will be flying soon and stressed high-value pines may need to be treated to prevent successful attacks by this insect. If a property has a few trees that were attacked by this insect last year, it may be worthwhile to treat them and the surrounding trees this spring. One application of an insecticide labeled for bark beetle control, applied at the proper rate, will be sufficient to protect pine trees from pine engraver beetles for the entire growing season since they will be out flying throughout the summer.

A difference between mountain pine beetle and the pine engraver beetle is engraver beetles have several complete generations per year so we tend to see

adults out flying (and attacking new hosts) throughout the season, from April to September. The second generation, which usually appears in May or June, is most commonly the one that goes after stressed trees. However, a drought stressed trees can be attacked at any point during the growing season.

Finally, since pine engraver beetles infest branches as well as trunks, the entire tree must be sprayed, not just the trunk. This means a sprayer with enough pressure to reach high into the canopy.

Pine shoot blight in the Black Hills

There has been a recent media report of an outbreak of 'unexplained' infection of pine by this disease. Pine shoot blight is more commonly called Diplodia tip blight (*Diplodia sapinea*). It is a shoot disease of native and exotic 2- and 3-needled pines. We see the disease on Austrian pine (*Pinus. nigra*) in community and windbreak plantings and in ponderosa pine (*P. ponderosa*) throughout the Black Hills as well as in towns and windbreaks across the state.

There is nothing new about the disease in the Black Hills. We find it in dense as well as open stands, in young trees as well as old trees. The only common denominator in many pockets of infested trees is hail. It was once thought that hail opened up wounds in a tree that permitted infection. Now we know that Diplodia can exist as an endophyte in healthy pines. As long as the tree remains healthy, it does not present symptoms of the disease. However, if the tree is stressed - hail-damage, drought, old-age - the fungus begins to kill shoot tips.



The disease symptoms are dying or dead stunted shoot tips with short, hanging, discolored needles. The disease often does not kill the tree, but can disfigure it as the canopy become filled with these dead tips. However, over-mature trees can be killed.

The disease is found on pines throughout the globe and its origin is unknown. It was first noted in the Black Hills in 1943 but probably was there earlier. A more extensive report on infection in the Black Hills was made in 1979. We find the disease almost everywhere we find susceptible pines in our state.

The disease can be treated, not cured, by fungicide treatments in the spring starting when the buds are just beginning to swell and continuing through shoot expansion. The timing and fungicides will be in a coming Update, closer to the treatment period.

E-samples



I received this picture of a pine shoot and while it might be hard to see, there is a glob of resin at the base of each of the needles. I saw this once before on a tree near Mobridge and was not able to identify the causal agent. I sent this picture around to a number of pathologists and we are all stumped. I am asking for a sample and will report in a future *Update* if we find the reason for this resin. If any *Update* reader has an idea, or has seen this on other pines, please email me at the address at the top of the *Update*.

Samples received/Site visits

Brookings County

What is this growth on my pine tree?



This round branch gall is from western gall rust (*Peridermium harknessii*). This fungus is a common rust disease that causes deformations in branches and stems of ponderosa pines as well as many other native and exotic pines (including even mugo pine). These galls will swell in early summer and produce white to orange pustules. A, yellowish dust, the spores, will come from these pustules. The spores are

carried by the wind and infect the expanding shoots and needles of nearby pines. While swellings are often the only sign of the disease, stem cankers may also occur which can break the trunks of small trees during excessive loading by wind or snow. Many trees are not highly susceptible to the disease so it seems to appear only on certain trees within a stand. If the galls are pruned from these infected trees, they often just reappear. The best management is just to remove young trees with galls.



Meade County

What is causing this growth?

This was a site visit and the Rocky Mountain juniper (*Juniperus scopulorum*) had a ball composed of stunted short shoots and dense foliage. This is called witches'-broom and is commonly due to a fungus, *Gymnosporangium nidus-avis*, though these brooms have been associated with a phytoplasm, a bacteria-like organism, in the Pacific Northwest. The fungal disease is called juniper broom rust and as with most rust disease has an alternate host. This disease alternates between juniper (Eastern redcedar, *J. virginiana*, or Rock Mt.

juniper) and serviceberry (*Amelanchier*) a common tall shrub/small tree found in the Black Hills. The disease is not common on junipers and is more a curiosity than a threat to their health.

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