Pest Update (June 7, 2017)

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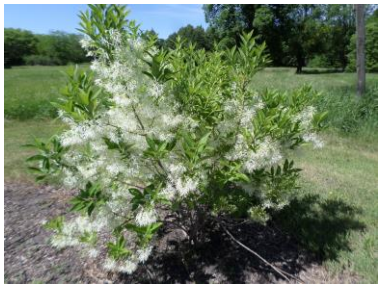
Note: samples containing living tissue may only be accepted from South Dakota. Please do not send samples of dying plants or insects from other states. If you live outside of South Dakota and have a question, instead please send a digital picture of the pest or problem.

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.

Plant development for the growing season



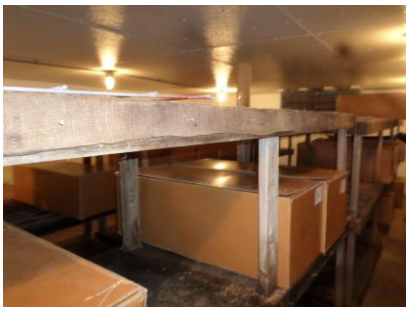
The Fringetrees (*Chionanthus virginicus*) are in full bloom in Brookings. These unusual shrubs are more common in the eastern US but appear to be hardy to at least as far north as Brookings. The white strap-like flowers are very fragrant (they are related to lilacs) and the late summer bluish black olive-like fruits also add to their ornamental appeal (and are enjoyed by the birds).

Treatments to do now

Dothistroma treatments should be started now. This is a very common disease of Austrian pines this year (also ponderosa pines in East River shelterbelts and the Black Hills) and is responsible for some of the discolored needles we are seeing on pines this year. The symptoms are dead needle tips beyond the 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 infection this year is so bad that the entire needle may be discolored. The treatment is a copper fungicide applied now as the candles are expanding and repeated in late June and again in mid-July. There are a number of copper containing fungicides available such as Camelot for those individuals who have to spray several or more trees.

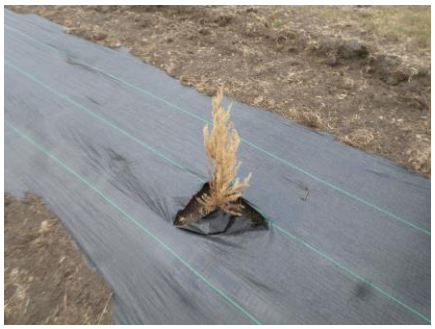
Timely Topics

Dying cedar calls are beginning to come it. These are eastern redcedars (*Juniperus virginiana*), though occasionally the call is about the western “cedar”, the Rocky Mountain juniper (*J. scopulorum*). The trees were planted this spring in new windbreak and now are almost completely brown and brittle.



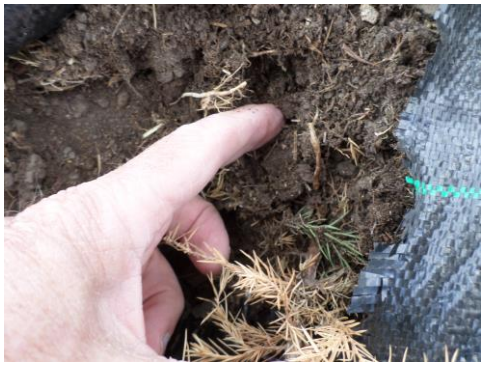
I started the inspection at some of the Conservation Districts coolers and these were all being properly maintained. The air temperatures were about 36^{o}F and with a humidity of 94%. The trees were also being stored in the original box from the nursery and these boxes are specifically designed to hold moisture. I examined the trees in the boxes and they were all in good condition. The roots were moist and when the shoot and roots

were scrapped, the sapwood was a creamy white and moist. Some of the foliage was slightly brown but this is really just a color change from storage and not a health concern.



However, in the field these trees were now brown. When the shoots were scrapped the underlying sapwood was dry and brown. Some of the roots were still showing green but there was no new root growth this spring – none of the soft, white tips that should have been present.

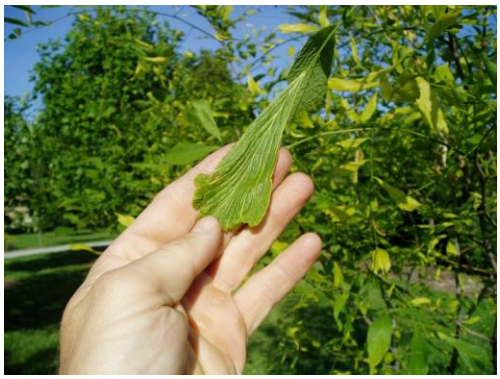
Not too surprising, all the calls have come from counties that experiencing a drought this year. When I was digging up the seedlings to look at the roots the soil was a dry as flour. The trees had not been watered, not even once, since planted a month ago! As mentioned in an early *Update*, the trees need to be watered at planting – that day – and watered every day for a few weeks. Since this was missed, we are probably going to see significant mortality in belts this year and for many the only needed treatment was spraying – water!



Drought stress

I am fearing that the central part of our state is in another cycle of drought. They had a dry summer/fall, warm winter, and now a dry spring/summer, the perfect storm to kill a spruce. Spruce are not noted for drought or heat tolerance; there is a reason we don't have vast spruce forests until you are in Canada (or the cool canyons and higher elevations of the Black Hills). They are fairly adaptable and tolerate our climate, but these dry spells can result in decline and death. I have seen too many spruce in the central part of the state covered in cones – a condition the tree owners assumes means the tree is healthy. It's not, coning in a young (less than 20-foot tall tree) is a sign of stress! You cannot do much about the hot weather, but you can do a lot about the dry soils. Established spruce in grass need about 10 to 20 gallons of water a week either from an inch of rain or from a hose.

Herbicide



I have been receiving numerous pictures of trees that appear to have been subjected to herbicide drift. Unfortunately this is a common occurrence at this time of year and not unique to South Dakota. Justin Everton, Nebraska Forest Service, send along this picture of a hackberry tree damaged by drift in his state.

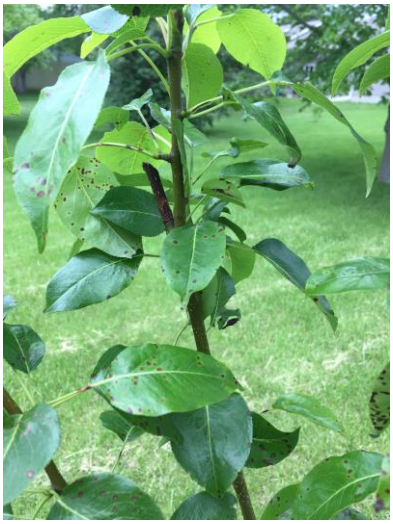
The typical scenario is an applicator sprays a field. The adjacent landowner either notices some damage to their trees or are concerned that some damage may occur. The applicator and landowner decide to wait until next year to see how the trees look. A year later the trees do not look too good so the landowner wants money to pay for the damaged trees. The applicator believes the trees were damaged by the winter or other agent and doesn't want to pay. A year after the application it can be very difficult to match symptoms to a past application or even find traces of the herbicide in the plant tissue. And even if the herbicide is there, perhaps it was the result of drift from another application, unrelated to this one. It's never a wise idea to wait to see what may happen.

If a landowner is concerned that their trees may have been impacted by drift, a complaint should be made within 30 days of the application or the first appearance of damage (the sooner the better, preferable within days of the application. The complaint is made through Ag Services, South Dakota Department of Agriculture. They can be contacted at 605-773-4432. A pesticide complaint can be filed on line at:
www.state.sd.us/eforms/secure/eforms/E2093V1-PesticideComplaint.pdf.

E-samples

Leaf blotch on buckeyes is also putting out its annual appearance. I usually receive a few calls and samples about this disease about the middle of the summer as it is a common occurrence on buckeyes and horsechestnuts. The disease, caused by the fungus *Guignardia aesculi*, results in reddish brown blotches on the leaves that often have a yellowish margin. The blotches continue to expand as the season progresses with the entire leaf often becoming brown by late summer/early autumn and dropping prematurely. The disease is easy to confuse with scorch,

particularly this hot, dry summer but tiny black specks of pycnidia may be seen with a hand lens though they are not as easily seen or found this summer. Scorch is usually more common on the sunnier, windy side of the tree while blotch will be found throughout the tree. Probably the best means of separating the two leaf problems is that leaf blotch occurs in the leaf, which scorch is often limited to the margins of the leaf.



Pear leaf blight (*Fabraea maculata* = *Entomosporium*) appears to be the problem infecting these pear leaves. This disease begins as small, purple spots that expand to become purplish black spots about ¼-inch in diameter. The center of these spots often have a slight raised area that oozes a gelatin mass of spores during wet weather. Heavily infected leaves will shed in mid-summer leaving a tree almost completely defoliated. The fruit can also become infected with the spots running together resulting in dry, cracked fruit. The disease can be managed with fungicide but the treatments begin in the spring as the buds swell so it's too late for this year.

I have received several pictures of the **pine tortoise scale** (*Toumeyella parvicornus*) this past week, all from the Custer area. Dave, a South Dakota Department of Agriculture intern took this picture of a shoot covered with scales. Victor Gust, from Warne Chemical in Rapid City also send along some pictures and his observations of heavily infested trees in Custer.

The pine tortoise scale is a native insect found throughout most of the East and west to the Front Range. It infests a wide range of hosts including Austrian (*Pinus nigra*), mugo (*P. mugo*) and Scotch (*P. sylvestris*) pine. It is not usually a problem with ponderosa pine (*P. ponderosa*).

Pine tortoise scales are a soft scale meaning they produce honeydew, a sticky substances that becomes infected with sooty mold which gives infested branches a black, powdery appearance. Pine tortoise scales have long piercing-sucking mouthparts that are inserted directly in the sap stream of the tree.

The female adult is about 1/8-inch in diameter with a shell that looks like a small tortoise shell. However, unlike turtles, the female adult scale does not move.

She remains sessile, staying stationary for her entire life sucking sap from the twig or needle. The males have an equally miserable existence, flying about for a few days and perhaps mating with a female. Since the female does not need to mate to produce fertile eggs, he really does not matter.

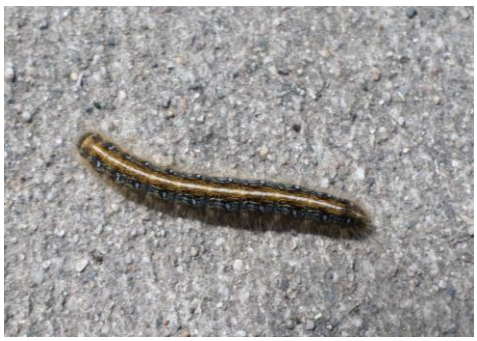
The eggs hatch beneath their dead mom beginning in early June and the young, referred to as crawlers, quickly find a place on the shoot (though sometimes a needle) to begin feeding. The males develop wings as adults and fly away, females just lose their legs and stay there.

If mom does not fly, how do the crawlers move from one tree to the next? Most don't, content to stay on the same shoot they hatched from but some are carried by the wind or even hitchhike on birds (usually heavily infested mugo pines have a bird feeder near them).

Generally pine tortoise scale is not a tree killer. The amount of sap removed is insignificant for a mature tree. However, if the populations become dense, the feeding can result in individual branch dieback and even kill, or at least stunt, an entire tree. Victor noted that some of the infested trees had barely been producing any shoot growth during the past several years which is unusual but possible with very heavy infestation. We normally do not have to treat for this scale since there are lots of insects that find the scale a tasty and easy to catch dinner. Lacewings and ladybugs seem to particularly enjoy the meal.

So why is there an outbreak of this insect on ponderosa pines in the Black Hills? It just might be related to the amount of spraying done for mountain pine beetle. The adult female is protected from most bark sprays so she will survive to lay eggs. The eggs are also protected as they are beneath the shell of mom. A bark spray in May or early June to protect a tree from mountain pine beetle can kill most of the insects that feed on the scale, but have minimal impact on the scale population. Foliage sprays, except for insecticidal soap and horticultural oils, are generally not recommended for soft scales as they can kill more of the beneficial insects than the pest. Soft scales populations on mature trees are usually managed with soil or bark drenches of systemic insecticides to minimize impact on the scale's natural enemies.

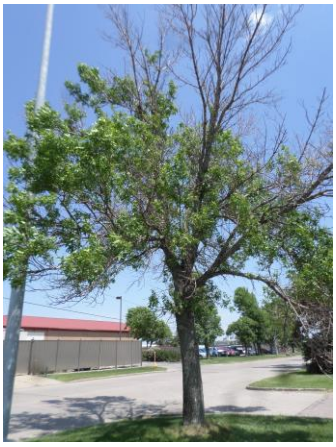
Kurt Allen, an entomologist with the USDA Forest Service, and I had recommended during the epidemic that landowners pick out a few of their favorite pines for mountain pine beetle treatment rather than attempt to spray entire acreages. There are always exceptions to this recommendation, of course, and no one wanted to loss their trees. But widespread spraying in some areas may be causing unexpected consequences.



Tent caterpillar are almost finished feeding for the season. The tents have become discolored and tattered, long discarded as a home for the caterpillars. The foliage damage is almost complete. A leaf chewed by the caterpillar often has only the midrib and presents. The few caterpillars wandering about are usually over 2-inches long and are now on the ground looking for a place to pupae until later this summer when they emerge as adult moths. Spraying at this time is really revenge spraying. The damage is already done and killing a few caterpillar, while entertaining, will have little benefit in reducing the possibility of damage next year.

Samples received/site visits

Minnehaha County **Possible emerald ash borer infested tree.**

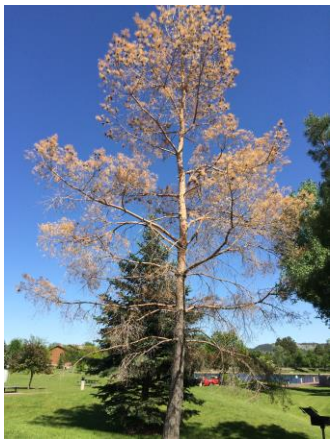


The concern regarding this tree was sent in by a forester from Missouri that happened to notice the dying ash while he was fuelling his car on a trip from Seattle to home. I stopped to inspect the tree and it was not emerald ash borer but the ash bark beetle (the same insect discussed in another EAB possible two weeks ago in the Update). This ash is presenting typical symptoms of a stressed ash in South Dakota, expensive, but discrete, dieback. The tree is growing in a parking lot peninsula, meaning it is surrounded on three sides by asphalt limiting water and, of course, no one is watering it.

Since it is a stressed tree, it is attractive to the ash bark beetle and every dead and dying branch and twig was crisscrossed with the galleries of the adults and larvae. One of the biggest difficulties of detecting EAB in our state is about half our ash look like they are dying anyway so a dying ash is not an unusual sight.

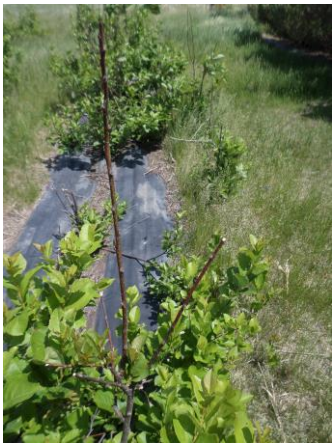
The best clue for an EAB infested tree is the presence of extensive woodpecker damage in the upper canopy or even along the entire trunk as seen in this picture of an EAB infested tree in New York I took several weeks ago.

Pennington County **Pine wilt disease in Scotch pine**



This clearly declining Scotch pine was sampled for the pinewood nematode and the pinewood nematode was extracted from the wood cores. This disease has been found in Pennington County for the past 20 years and is slowly eliminating the Austrian and Scotch pines in Rapid City. There are very effective treatments for preventing a tree from becoming infected (however they require a commercial applicator) but no treatments are of value once the tree is infected and begins to decline. This tree should be removed and the wood destroyed to prevent sawyer beetle from emerging and carrying the nematodes to a new host.

Potter County **Oh Deer!**



I looked at two locations were a number of the trees in belts that were stunted and the problem was deer, not disease. The deer had nipped the tips from chokecherries along one edge of a belts that also had a lot of nice evergreen hiding cover for them. Deer will nip the tips of chokecherries; they are a preferred food and there is probably nothing other than fencing or bullets that will persuade them to stop feeding here. The deer had also browsed down the Meyer spruce in another belt with a heavy deer pressure. I have seen several belts where the Meyer spruce look like beach balls the deer have browsed them so heavily.

Turner County **Green ash leaves and twigs dropping**

This is ash anthracnose (*Discula umbringla*) a common disease this spring in the eastern counties that have seen rain this year. The disease not only results in the leaves becoming distorted but they can begin falling premature. The disease can also cause twig cankers so sometimes shoot tips will drop as well. There is nothing that can be done for the disease at this time and while it can mean a little (or a lot) of raking, the tree will survive the infection. As the weather turns dry you should also see fewer leaves falling. We usually do not see the disease as

bad every year so it's unlikely to be a problem again next year. If the tree owner is concerned about a reappearance of the disease, a fungicide labelled for anthracnose and containing myclobutanil or chlorothalonil as the active ingredient can be applied with the first treatment at bud swell and two more treatments spaced 10 days apart.

The twigs submitted as a sample also had a few lecanium scales (*Parthenolecanium*) attached to them. Most likely the population is not high enough for treatment, but if many of the twigs have the scales on them the tree can be treated with insecticidal soap when the crawlers hatch (probably in a couple of weeks). Insecticidal soap is the best treatment as it does not injure the scale's natural enemies. However, it is probably not practical to spay a mature tree with this amount of soap. There are effective treatments such as the insecticide Safari (dinotefuran) but these will require a commercial applicator so I suggest he contact a tree company if he wants to treat for the scale.

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