



Tree Pest Alert



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Samples

John Ball, Professor, SDSU Extension Forestry Specialist & South Dakota Department of Agriculture and Natural Resources Forest Health Specialist

Email: john.ball@sdstate.edu

Phone: 605-688-4737 (office), 605-695-2503 (cell)

Samples sent to: John Ball
Agronomy, Horticulture and Plant Science Department Rm 314, Berg Agricultural Hall, Box 2207A
South Dakota State University
Brookings, SD 57007-0996

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

Warm and occasionally rainy weather has blanketed the state during the past week. The growing season is progressing along as normal.

These are the current growing degree days (GDD-base 50) for communities across the state.

Aberdeen	670
Beresford	880
Chamberlain	814
Rapid City	635
Sioux Falls	834

Catalpas and Tartarian maples (pictured) are in bloom across much of the state. The late spring blooms might be better if it were not dry throughout much of the state.



Much of the state is classified between Abnormally Dry to Severe Drought according to the US Drought Monitor. Only some parts of the West River - Butte, Lawrence, Meade, Pennington, Perkins Counties - and Brown, Campbell, Edmunds, and McPherson Counties in the east are not under some level of drought.

The southeastern counties bordering the Missouri River are already classified as Severe Drought. These counties were listed as Severe Drought last year. Most of the three problems we are seeing in this area are due to the persistent dry conditions. Water, not fertilizer, is what the trees need in this area.

Treatments to Begin Now

Spruce bud scale

Spruce bud scale (*Physokermes piceae*) crawlers will soon be hatching. The scale resembles a small round, reddish bud which can be found on the tips of the branches where the side branches attach to the shoot. They, and their mobile young called crawlers, suck the sap from the shoots resulting in dieback and decline of

the lower branches. Since these are soft scales, they produce honeydew which results in a black, sooty appearance to the needles and twigs. This scale has one generation per year. The crawlers hatch about the time littleleaf lindens bloom which should be in another week or two.

The best treatments are insecticides containing Carbaryl as the active ingredient and applied on the foliage and shoots near the tips. Products containing Imidacloprid can be effective as a soil drench but need to be applied in the fall or early spring for control during the summer.

Spruce needleminer

Spruce needleminer larvae dropped from their webbed nests several weeks ago and formed cocoons in the soil. They begin emerging as adults at about 800 GDD in South Dakota so the small gray moths are starting to fly. Previously infested spruce trees can be sprayed with an insecticide containing Carbaryl as the active ingredient (and labelled for this use) to kill the adult moths before they lay eggs.

Timely Topics

Emerald ash borer update

The adults have begun emerging during the past week. New D-shaped emergence holes are appearing on the ash trees we have been monitoring this spring.

The tunnels leading from the overwinter chambers to the bark are carved by the larvae before they settle back into the chamber and curl for their winter nap.

The adults move back through these tunnels and then chew their way through the bark to emerge. The exit hole forms a crisp D shape about 1/8 inch wide; the same cross-sectional dimensions as the adults.

The adults do not emerge at once, so we are still finding pupae as well as teneral adults, fully formed adults that are hardening their exoskeleton before emerging.

Once the adults emerge, they move up into the host tree foliage where they chew on the margins of the leaves creating small notches and tears. The adults are a brilliant metallic green (with a little red beneath the wings) and about 1/2 to 3/4 inch long but less than 1/8 inch wide.

Adult females feed on foliage for a week or two before laying eggs. The eggs take a week or so to hatch so I do not expect to see the first larvae of 2023 until about the third week of June which will coincide with the peak of adult emergence.

Water before injecting an ash tree

We are still in a good window for treating ash trees for the emerald ash borer. Treatments applied will kill adults as they are feeding on the leaves, a prerequisite to laying eggs. Treatments applied now will not kill all adults. The adults are flying now and will begin laying eggs next week. It can take a week or more before the

insecticide injected into the tree reaches the leaves in the canopy.

This means there may be some egg hatch on ash trees treated now or during the next week or two. Fortunately, the insecticide will move into the canopy soon enough to kill any young larvae that hatch before they do any damage to the tree. It is still a good time to treat ash.

But it is dry again this year. Dry soil slows the uptake of insecticides injected into the trunk. Commercial applicators are reminding customers to water their trees the evening before they do the injections. This does not mean just sprinkling some water on the lawn.

A mature ash tree will need several hundred gallons of water applied the evening before (unless it is raining). Divide the area beneath the tree into quadrants. Place an oscillating sprinkler into a quadrant so the water coverage is through this area. Be sure the coverage is from the trunk of the tree to a distance equal to at least one-third to half the tree's height. The sprinkler should be run at least 30 minutes in each quadrant.

Thinning ash canopies does not always mean borers

The number of suspected emerald ash borer calls is almost overwhelming! I received pictures (email and text) as well as telephone calls and they are all the same. The ash tree in their yard is leafing out slowly, branch by branch. The tree does not have a full canopy but has tufts of leaves and some branches are bare.



A thinning canopy is a common symptom of an emerald ash borer infested tree, but this same symptom can be due to other agents. We are still seeing a lot of frost injury on ash and other trees. There are also ashes that are dropping leaves from a foliage fungal disease called ash anthracnose.

I can find emerald ash borer infested trees presenting similar symptoms of crown thinning. However, on these trees I also find the telltale signs of woodpecker drills and some blanding – the removal of the outer layer of bark.

E-samples

Ash/lilac borer pupae

Ash/lilac borers (*Podosesia syringae*) adults have been emerging from their host trees for a couple of weeks now. They crave a round hole about the diameter of a pencil through the bark, so it looks quite different from emerald ash borer. Another distinction is the reddish brown, papery pupal skin left by the emerging adult is often left at the hole. Management of the ash/lilac borer was covered in the May 17 issue of the Pest Alert.



Engraver beetles in ponderosa pines

The first-generation pine engraver adults (*Ips pini*) typically infest green slash piles and fallen tree branches. If the standing pine trees are stressed - and drought is the stress in the southern Black Hills - the adults can successfully attack them.

Pine engraver beetles are burrowing into living pines in the southern Black Hills. These infested trees have fine, brown dust dotting their branches. If the bark is pulled away at these spots, the burrowing adults can be found.



Some of these infested trees are already displaying yellowing needles. Many of the pines turning color now were infested last year, just the infestation did not kill the tree. Two years of being infested, along with the drought-stress, will kill these trees.

Metallic flatheaded borer

This picture was sent in from a West River gardener concerned about an insect found on their sidewalk. They have pines on their property and were concerned it might kill the trees in Hot Springs.

This is the flatheaded pine borer (*Chalcophora virginiensis*). It is common in the Black Hills and is one of our many metallic wood borers. These are large, 1- to 2- inches long, iridescent, or metallic insects. The good news is they infest dying or dead trees, not healthy trees. The bad news is there are pines in the southern Black Hills that are dying due to drought.



Tent caterpillars

I am still receiving pictures of "worms" in silky nests tucked into the canopies of trees (covered in the May 24 issue of the Pest Alert). This is a western tent caterpillar (*Malacosoma californicum*) found on Russian-olive. This host is a little unusual. Tent caterpillars prefer to feed on Prunus, the stone fruits such as cherries and plums but they are generalist and can feed on many different trees.



The mom moth does not feed on trees. She just lays eggs on them. The worm kids are not happy they have to feed on Russian-olive while some of their friends are happily munching on cherry leaves.

Samples received/Site visits

Custer County, White pine blister rust on limber pines

The past week we were surveying the relic stands of limber pines (*Pinus flexilis*) sprinkled along the north-facing slopes of the Cathedral Spires in Custer State Park. We have located and measured about 270 trees in five separate populations. The trees range from one year to just under 200 years old.

These native trees, isolated by more than one hundred miles from their cousins, have clung to life for centuries

enduring changing climates, fires, mountain pine beetle and competition from ponderosa pine and white spruce.

The trees have managed to survive despite these threats but are now declining from an introduced disease, white pine blister rust (*Cronartium ribicola*). This rust disease is native to eastern Asia where it infects 5-needled pines. The disease causes little problem in its native land and hosts.



Unfortunately, white pine blister rust was carried to Europe where it infected our native eastern white pine (*P. strobus*). The disease was carried to North America sometime during the late 1800s or early 1900s on white pine seedlings grown by European nurseries. The disease has spread throughout much of the country including South Dakota.

White pine blister rust was confirmed in Cathedral Spires in 1992. The blister rust has two hosts which it alternates, a five-needled pine and currants or gooseberries. The disease was found on the limber pines along the Spires and an alternate host, the wax currant (*Ribes cereum*).

Not all the limber pines in the Spires have become infected or the disease has been limited to a lower branch or two. We have been pruning out infections on the lower branches before they reach the trunk and girdle the tree. This has been successful on many trees but for others it has been “death by amputation” as the disease reappears every year until all the branches were infested.

We have been collecting seeds from the trees that have some resistance to the disease and hope we can establish trees that can survive the infection.

Minnehaha County, European elm flea weevil

The European elm flea weevil (*Orchestes steppensis*) is native to Asia where it happily munches on Siberian elm (*Ulmus pumila*). It was accidentally moved to Europe and then North America. It was first found in the upper Midwest in 2003. The flea weevil was confirmed in Hot Spring, South Dakota in 2009. It is now found throughout the state.

The 1/10-inch reddish brown adult weevils have a long stout (a common characteristic of weevils) and are in the

overwintering stage. They become active in the spring as the leaves open and make irregular holes in the expanding foliage. Eggs are also laid along the veins of these leaves.

Once the eggs hatch, the larvae live as miners feeding between the upper and lower tissue of a leaf (picture). This empty space causes the leaf to appear opaque. You can sometime see the silhouette of the larvae feeding in the foliage. The blotch mines on these leaves eventually turn brown and may fall prematurely.



The insect is not a lethal threat to its host. The holes and blotches just detract from the appearance. The insect is found on Siberian elm and any hybrid elm that has Siberian elm in its parentage.

Stanley County, Herbicide injury on trees

This was a stop at a home along the river. All the trees – maples, oaks, pears among others – were presenting with wilting leaves. While wilting leaves can be from drought, one unique symptom of exposure to growth regulator herbicides is in addition to cupping and wilting leaf blades, the petioles of the affected leaves are curled and twisted.



The shoreline has been sprayed with 2,4-D to kill weeds. While 2,4-D is a common growth regulator herbicide, this formulation was almost 90% active ingredient and was an ester. The ester formulation, unlike amine, has a higher vapor pressure so easily vaporizes and is carried as drift.

The trees will survive exposure to 2,4-D drift, though some leaf drop should be expected. However, a second application this year might cause significant, and fatal, decline.