



**SOUTH DAKOTA STATE
UNIVERSITY EXTENSION**

Tree Pest Alert



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Samples

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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

The weather is finally turning warm but there is still a lot of snow on the ground. South Dakota is among the states where you can shovel two feet of snow in shorts and a t-shirt! We also had some ice damage to clean up.



The long winter means we are behind in growing degree days (GDD-base 50). Here is the current GDD for the following communities:

Aberdeen	0
Beresford	3
Chamberlain	11
Rapid City	32
Sioux Falls	1

Last year at this same time, we were at 60 to 80 GDD for these communities! While buds are starting to break in a few trees such as silver maple, most trees are content to way a little longer to see if it is actually becoming spring!

Treatments to Begin Now

Pine engraver bark treatments need to be applied now in the Black Hills

Spring is finally arriving after a long snowy winter. One of our first tree pests to appear is the pine engraver beetle (*Ips pini*). The adult beetle is the overwintering stage, so it only takes a few warm days of temperatures in the 60s for them to become active.

This insect is common in the pine forests of the Black Hills. Once the weather warms, often by early April, the adults will search for fresh green pine material to burrow into for a home. They prefer to infest recently fallen green branches or broken canopy branches during this first flight. They will also be attracted to standing pines that are stressed by drought.

The long-term drought has increased the beetle populations and subsequent tree damage during the past several years. Last summer it was not hard to find small pockets of pines that were attacked and killed by this beetle. Isolated or small pockets of ponderosa pines with dry, hanging yellow needles are now appearing throughout the Black Hills.



These are the trees that were attacked last year. If you pull the bark away from one of these trees, most likely there will be little to find. The pine engraver beetle spends the winter as an adult. While they can be found beneath the bark of these now-dead hosts, most spend the winter hidden in the duff layer beneath the snow. Now that snow is melting and the temperatures are warming, the adults will be flying.



High-value pines, those around homes in areas where tree losses occurred last year, should have their bark treated with an insecticide this spring. The insecticide will kill the adults as they search for a suitable host tree. Once they find a suitable tree, the adults burrow through the bark and lay eggs along their tunnels. The tunneling throughout the inner bark by the larvae are responsible for the decline and death of the host tree.

There are several different active ingredients used in bark sprays for engraver beetle management. Two of the most common are carbaryl and permethrin. These ingredients are found in a wide range of insecticides. When used to treat bark beetles, this use must be specifically identified on the insecticide label.

The insecticides must be applied now to be sure the bark is thoroughly covered before the majority of adult beetles begin to fly. If the insecticide is labeled for bark beetles, the residue will remain effective for the entire growing season so there is no reason to delay the application.

The application must be applied with sufficient pressure to reach the top of the tree and soak all the branches. This means hiring a commercial service with sprayers with enough pressure to carry the insecticide into the tree canopy. This is not the time for a garden hose sprayer and a ladder.

Call a reputable local company soon to get on their schedule for this spring.

Timely Topics

Emerald ash borer update

The warming weather is beginning to wake the emerald ash borers from their winter slumber. A few more of the J-shaped larvae in their winter chambers are beginning to shrink to form into prepupae. They will form into pupae in early May. Adult emergence is still expected to begin after Memorial Day.

Catalpa seed update

The catalpa seeds that were planted back in January (see Pest Alert January 18-25), germinated about ten days after planting and are continuing to grow in the sunny warmth of the greenhouse. They are about four inches tall now. They will be planted out in the garden in mid-May after the risk of frost is minimal.



E-samples

More bunny browsing

This is an apple tree that has been girdled by the rabbits. The high trunk and branch browsing is not because we have exceptionally tall rabbits in South Dakota. The snow depth allowed rabbits to reach the canopies of small trees this year. I have seen a few apple trees with bunnies browsing six feet off the ground!

Regardless of height of the browse damage, the questions are the same; what can be done and will the tree live? The former is easy. Nothing can be done other than remove the browsed tree or branch. The answer to the latter depends on where the tree was browsed.



If the browsing extended completely around the lower trunk and exposed the white sapwood – the tree is a goner. The tissue just beneath the branch, phloem, which transports sugars from the leaves to the roots has been interrupted. The tree will probably leaf out this spring but the severed connection between the leaves and roots means the roots will starve. Once the roots exhaust their food reserves they die; with no water uptake, the entire tree dies though the process may take the entire summer.

If a branch was girdled – the bark completely removed around the branch– the portion of the branch distal to the injury will decline and possibly die. Since the roots will not be significantly impacted by the severing of a branch or two, the tree will survive. The branch may survive if the browsing was not deep enough to sever the tissue that transports the water which is just inside the branch from the phloem. The only way to know is to wait and see if the branch produces leaves but then wilts this summer. If so, remove the branch.

Russian-olive identification

Obviously, an image taken last summer, but a West River reader was wondering what this plant is that comes up by the house. They cut it back, but it sprouts up again every year. The foliage along the dark brown sprouts is alternately arranged about one to three inches long and dull green to gray in color.



This is a Russian-olive (*Elaeagnus angustifolia*). It was widely planted in the state due to its toughness but its toughness was its undoing. The tree became invasive, displacing native riparian vegetation. While birds and mammals do feed on the fruit (it's not a true olive), bird species richness is still higher in native vegetation.

The best way to finally kill the tree is either take a shovel and dig up as much of the roots as possible or cut any sprouts off as soon as they form. This will exhaust the food reserves in the roots and the plant will die.

Samples received/Site visits

Bennett County, Update on dying spruce

The spruce windbreak on this ranch is reminding me of the parable of the blind men and the elephant. This well-known story has each man describing the elephant completely different – based on what he touched; the trunk, leg, tail, etc. I am the third person to stop by to look at these trees and the landowner hears different things.

As with the parable, everyone is right in describing a portion of the elephant or the problem with these trees. The challenge is that there are multiple issues with these trees so one simple answer is not possible.

The underlying problem is the 2020 through 2022 drought. The average annual precipitation in Martin is 19.5 inches. The years 2020 and 2021 received about 13 inches, less than 70 percent of the average.



These spruces show a record of this water deficit. They have put out minimal shoot growth during the past two years. If the drought continues, this stress along is enough to slowly kill off the trees.

The trees are also afflicted with a defoliator, the spruce needleminer (*Endothenia albolineana*). This insect snips off needles and ties them in loose bundles. The nests of bundled needles are easy to find along the interior branches of infested trees along with hollow needles.



This insect is managed by an insecticide labelled for this use, carbaryl is a common active ingredient, applied at about 450 GDD so we are a long way off from this application, probably late May. The spray targets the adult moth as they are laying eggs.

While drought and defoliation are the major agents of decline, spacing and fabric may also be contributing factors. While the trees are not yet touching, the spacing is close and this increases competition for what little water is present. The trees are also the height, about 10 feet, where we occasionally see trunks girdled by the fabric. The snow and ice prevented checking for this possibility but will follow up on a later visit.

Hughes County, Deer damage on pine

This is the year for critter damage! Most of the calls are about rabbit damage but we are also seeing lots of deer problems, especially on pines. Deer are not neat feeders. The browse damage presents as rough, torn needles and shoots rather than cleanly clipped. There will not be any teeth marks.



The browsing is usually limited to branches less than one inch in diameter. These are along the lower canopy where they can be easily reached. There is little that can be done at this time other than prune off shredded shoots.

Lincoln County, Herbicide injury on pine in parking island

These pines are presenting with the most common symptoms of a growth-regulator herbicide. The shoot tips are showing epinasty (deformity, twisting and curling). An application of a broadleaf weed herbicide was made in the stone mulch last spring just as the pine trees were sending out their new shoots.



Stanley County, Sapsucker injury to Vanguard elm

Sapsuckers are birds that are a type of woodpecker. They are unique among these birds as they create a series of parallel rows of small, 1/4-inch holes that circle the tree trunk. The birds will sip sap from these wounds though burrowing insects are also a part of their diet.



The preferred hosts are apple, aspen, elm, maple, and pine. The hybrid elms, such as this Vanguard elm (*Ulmus* 'Morton Plainsman'), are common hosts. The trees are rarely harmed by this feeding but the pattern is a curiosity and a frequent reason for a call.

Stanley County, Woodpecker injury to swamp white oak (oak galls)

The bark on this swamp white oak (*Quercus bicolor*) was shredded along the smaller branches. The culprit is the downy woodpeckers but the real problem is a tiny gall wasp (*Callirhytis flavipes*) that lives beneath the bark.



The gall wasps do little harm to the branches but the woodpeckers find the tiny white larvae tasty and will shred the bark in their search for these treats. The larvae are very numerous beneath the bark of an infested tree.

Adult wasps will emerge from tiny holes this spring and lay eggs along the midribs of the newly expanded leaves. Once the larvae hatch, their feeding causes an elongated greenish gall to form along the middle vein of the leaf.

Later in the summer adult wasps emerge from these galls and lay eggs on the branches. Once the eggs hatch the larvae burrow into the inner bark of the branches to feed. They remain beneath the bark until the following spring where they form a pupa and then emerge as an adult wasp.



The woodpecker damage can be enough to kill branches and occasionally entire trees. The solution is to remove the attractant, the gall wasp larvae, not kill the birds. An insecticide containing emamectin benzoate (and labelled for control of gall wasps) can be injected into the trunk or applied as a soil drench at leaf expansion to kill the first generation of larvae in the leaves. There is sufficient residue to also kill any larvae of the second generation in the fall that are feeding in the branches.

While we have seen this woodpecker/gall wasp problem on young bur oaks, swamp white oak is also a host for the gall wasp.