

Pest Update (April 19, 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.

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Plant development for the growing season

The forsythias and corneliancherries are in full bloom, the magnolias are starting, and the crabapples and maples are just beginning to leaf out. This looks like another early spring for South Dakota.

Treatments to do soon



Pine engraver beetle. The warm, dry spring has moved up the emergence of the pine engraver beetle (*Ips pini*). The adults spend the winter beneath the bark of standing or down trees or in the litter beneath the tree. When we start having consistent warm weather (temperatures in the 60°F) the adults begin flying. *This flight usually coincides with the leaves of apple trees beginning to open.*

These adults actually prefer fresh slash (the branches and limbs left on the ground from recently felled trees). If the needles attached to these branches are still green, most likely the beetles will attack the slash and not the standing trees. However, during periods of drought or if slash is not available or has dried out, the beetles may attack stressed trees. Treatment for the pine engraver beetle is a trunk application of an insecticide labeled for bark beetle control. Most of these will contain Carabryl or Permethrin as the active ingredient. The entire tree, from the top of the canopy to the base of the trunk, must be treated when treating for the engraver beetles. A single treatment made soon with coverage over the entire tree is sufficient to manage this insects.



Spruce spider mites become active as silver maple leaves are expanding. Spruce spider mites are cool season mites meaning they are active in the spring and fall, not during the summer heat. The mites will go dormant once the temperatures consistently reach into the mid 80's. While the mites will begin feeding soon, the damage to the needles, bronzing and browning, does not typically show until summer just as the mite populations begin to decline. Treatment options are very limited for homeowners, horticultural oils and insecticidal soaps being the two most common. These

are really suppression treatments, not eradication, and the mite webbing often prevents these pesticides, particularly the soap, from penetrating and reaching the mites.

If soaps or oils are used they should be applied within the next week and then another treatment in 7 to 10 days to kill mites that are hatching later. Be aware of the cautions to using these products, particularly for Colorado spruce, as applications of oils or soaps can result in the loss of blue or silvery color to the foliage. You can make a *blue* spruce, a *green* spruce, very quickly, so read and follow label directions very carefully.

The other common homeowner spider mite treatments have the active ingredient acephate but this kills more than mites and sometimes has limited effectiveness. There are a number of products that provide excellent management of mites and have minimal impact on non-target organisms but these are only commercially available. It is worth the money to have a commercial applicator provide these treatments considering the effectiveness of these products versus those available to homeowners. This is one pest it is far better to pay for a professional than attempt to do it yourself.



Zimmerman pine moth is not just a single insect, but a complex of three different species of closely related insects. The three species found in South Dakota are *Dioryctria ponderosae*, *D. tumicolella* and *D. zimmermani*. The first two are generally found West River, while the last is found only East River. All three insects are easily identified by the masses of reddish pitch created in response to the burrowing activity of the larvae. Typically the pitch masses will

be found near the branch whorls and infested trees will often have broken branches near these pitch masses as well as deformed tree tops. While the damage is the same, the treatment window differs among the three due to different life cycles. ***D. ponderosae* and *D. zimmermani* should be treated with a bark spray during the end of April, in another week or two, and again in mid-August.** *D. ponderosa* is treated the first week of June and again in early July. The most common insecticides for managing this insect contain Permethrin as the active ingredient. The application must be made with sufficient pressure to penetrate the foliage and cover the trunk and branch attachments.

Timely Topics

Emerald ash borer update. First, it has not yet been discovered in South Dakota. However the day (year) is probably soon upon us. The discovery of the insect in Omaha last spring means that can move up the river system and will

probably reach Dakota Dunes in five or so years. Obviously it can arrive even soon on infested firewood.



Emerald ash borer was in the St. Paul, Minnesota news this past weekend. The insect was first discovered in the city in February 2010. It has been slowly expanding during the past seven years and the community has done an excellent job in managing this insect. However, the “7-year explosion” appears to have struck there as well. The news reports that last year they were still able to keep up with the removal but now the numbers have doubled. If the experience of other communities is any guide, the numbers will probably more than double the next year and the year after that.

Interestingly the problem St. Paul is experiencing is what to do with the streets lined with stumps. The budget can barely keep up with the removals and stumps are not the highest priority.

South Dakota will experience two problems with emerald ash borer – what to do with the infested trees in communities and what to do with the infested trees in windbreaks. Eventually, unless someone commits to long-term pesticide treatments for a tree, it will be killed by the borer, and someone will have to remove the tree. If not, trees killed by the emerald ash borer fall within a few years of dying.

It may be a few years before it is discovered in South Dakota and it probably will take a couple of decades to infest the entire state. Now is the time to continue to reduce our dependence on ash for our communities and windbreaks.



Planting bare-root trees. Bare-root is an excellent means of planting. The primary drawback is the narrow window in which bare-root trees can be planted. While bare-root trees can be planted in the autumn and spring in most of the United States, in South Dakota only spring planting is advised. Our harsh and dry winters can often injure tender fall planted bare-root trees. Bare-root plantings are limited to a spring time period between when soil

temperatures are warm enough for root growth (at least 45°F) and when the tree’s buds begin to expand.

There are two key consideration when planting bare-root trees; 1) keeping the roots moist until planting and 2) sweating. Bare-root trees are vulnerable to drying out as their roots are exposed to the sun and drying winds. Bare-root trees

must never have the root left to dry and exposed to the sun. This exposure can cause desiccation injury that will result in poor survival and growth. Bare-root trees must be kept cool (about 40°F) until planting and the roots covered with a damp packing material. Ideally the tree go directly from the packing material into a planting hole that is quickly filled with water and covered but this is always practical. However, the shorter the time between being removed from the packing material and into the planting hole, the better. Even a five minute exposure on a hot, windy day can kill tree roots.

If possible, hydrate the tree roots by placing them in a tank of water for one to two hours before planting. Only have the roots covered with water, not the tops. Also do not allow the trees to remain in water for more than two hours, longer time periods may result in root mortality.

Sweating. Some bare-root tree require sweating before being planted. The list of tree species that require sweating is fairly short. Bare-root birch, hawthorn, honeylocust, ironwood and oaks all require this treatment. If removed from a cooler and directly planted into the field or landscape, these tree often fail to break bud and remain dormant far into the summer either leaf out very late or not at all. Once bare-root trees require sweating, not container-grown or balled-and-burlapped trees.



Sweating bare-root trees starts with laying the stock down in a shaded area, preferably on the north side of a building or better yet on a concrete floor in a pole building. Cover the roots with wet packing material such as straw or fine woodchips and then seal the entire plant, tops and roots, with a sheet of clear plastic that is held tight to the ground.

The daytime air temperature should be between 50° and 60°F. Once the sweating process has started, the buds on the trees in this “mini sauna” will begin to swell within a few days exposure to these moderate temperatures and high humidity. Once the buds begin to swell remove the trees from the plastic and plant them.



The trees must be planted immediately following sweating but if planted in dry, cool conditions, the expanding buds will continue to open very slowly, if at all. The sweated trees should be planted in humid, warm conditions and these conditions may not occur in South Dakota until mid-spring. Keep bare-root oak and other species that require sweating in the cooler until that time and then sweat them for a week. The conditions outside should be acceptable for planting these bare-root trees in the field. This can be as late as mid-May or as early as mid-April depending on the weather. This year it looks like late April will be a

good time to plant and we have already started sweating some oaks at South Dakota State University for planting on Earth Day.

E-samples



Bacterial galls on cottonwood. Woody galls are associated with many species but the most common agent for these forming on cottonwoods in the Northern Plains is the bacterium *Agrobacterium tumefaciens*. The galls begin as slight swelling along branches (or occasionally roots). The galls enlarge over the years and the bark over them becomes rough and darkens. The galls can range in size from one inch to one foot and can be so numerous that they line an entire branch.

The bacteria is soil-borne and enters the tree either from cultivation or root-pruning in the nursery or by chewing insects. The infection usually occurs when the tree is still in the nursery or within a few years of planting so while the galls can be very noticeable in large trees, mature trees not showing galls are unlikely to present them in the future.



Bur oak gall. Not all galls or burs are caused by a bacterium. They can also be induced by fungi, insects, environmental stresses and even cell mutation. A large woody gall that is mostly hemispheric is referred to as a burl. These burls often form from a proliferation of buds that keep multiplying beneath the bark rather than forming shoots. This wood is highly prized by woodworkers as the sawn wood shows a wood grain that swirls around each of the bud traces. There have been problems with “burl theft” in some states since the wood is so valuable.



Buckbrush identification. Buckbrush, also known as western snowberry, (*Symphoricarpos occidentalis*) is native to South Dakota. It is a low shrub (about 3 feet tall) that can form large colonies due to its rhizome growth. The name Snowberry comes from the whitish fruit that lines the stems in late fall that remains hanging throughout the winter (probably because it's poisonous to eat for many animals). The fruit to the western snowberry is often a greenish white and often darkens when dried. The plant can out-compete most other vegetation, even grasses, and will invade woodlands and prairies. Herbicide applications, typically a 2,4-D ester, are sprayed over the top of the plant just as the leaves have expanded as there is

better penetration of the chemical in new leaves. Applications made later in the season are not as effective.

There is also the coralberry (*S. orbiculatus*) that more often occurs as scattered plants rather than large colonies and it overlaps the western snowberry in South Dakota. There is also a plant *Ceanothus cuneatus* that is called buckbrush found on the West Coast.



Herbicide (suspected) injury on pin oak. These pictures were taken of a pin oak this past summer (but only sent in this past week). The leaves are distorted and slightly stretched, a symptom referred to as a drawstring. This occurs as the herbicide stimulates the cells along the leaf veins to divide and elongate while stunting the development of the cells between veins. Another clue is the older

leaves on the trees are affected but not the newest ones at the tips so the injury had to occur during the development of these leaves in early summer as the foliage was expanding. These are typical symptoms associated with drift from a growth-regulator herbicide such as dicamba or 2,4-D.

Every year we see folks out spraying their weeds in early summer and during a warm day it does not take a lot of wind to have the chemical drift onto nearby trees. Early summer when the weeds are actively growing is not usually the ideal time to apply herbicides. Generally fall is the more effective time to apply post-emergent herbicides to broadleaf lawn weeds. At that time the weeds are storing reserves and the herbicides move to the roots system resulting in a better kill.



Possible old lightning strike. A vertical seam in a trunk is an indication of internal defect or a wound. The wound creates a weakened place in the wood that is prone to cracking. The seam can be due to many agents but a common one is an old lightning strike. The heat and pressure resulting from the flash can kill the tissue along and just beneath the bark often in a long column from the canopy to the roots. These lightning struck trees may present no further evidence of the strike or may have a portion of their canopy slowly decline over the following years.



Pileated woodpecker carving holes in an ash tree. These are relatively large birds (about the size of a crow) and have a chisel-shaped beak that is perfect for excavating deep holes in a tree trunk (they even have feathery tufts over their nostrils to protect the birds from the wood shaving). The favorite food of these woodpeckers are carpenter ants but they will also feed on woodborers such as our native clearwing ash borer. We do not see a lot of these birds (or their wood carving) in South Dakota as

they are more at home in mature Eastern forests.



Smooth patch disease on oak. Here is a disease that is common in south-central Minnesota that we do not see in South Dakota. This picture was sent in from the Mankato area and shows the disease Smooth patch. The disease gets its name from the smooth appearance of the bark. The fungi *Aleurodiscus* and *Dendrothele* infect the rough outer layer of bark and as this bark decomposes it sloughs off revealing the smooth, light colored bark beneath it. The disease really only affects the appearance of the tree and is not a life threat.



Tip moths in pines. There are two tip moths in South Dakota. The western pine tip moth (*Rhyacionia bushnellii*) is the most common though occasionally the Nantucket pine tip moth (*R. frustrana*) might appear. The adults of the two insects are indistinguishable so misidentification of the Nantucket for the western is always a possibility. However, regardless of the species the damage is the same, the larvae mine the buds and tender new shoots which results in dead shoots which break off or crumple during the summer. There will also be dried resin on the buds and shoots.

The moths appear in the spring and the female lays eggs on the elongating shoots (but before the needles are fully formed). The major difference between the western and the Nantucket tip moths is the western has one generation per year while the Nantucket has several. The western tip moth usually overwinters as a pupae in the duff beneath the tree while the Nantucket tip moth passes winter as a pupae in the bud. Managing the first generation is the key to management and treatments include insecticides labelled for tip moth and include Imidacloprid or Permethrin or Spinosad as the active ingredient. The application is made just as shoots begin to expand in May.

Samples received/site visits

Penning County

Pinewood nematode sample

While the wood cores did not show much staining, they did contain lots of the pinewood nematode. We have seen pine wilt disease in the Black Hills region, from Hot Springs to Spearfish for the past 15 years or so. The disease is a threat to our two commonly planted exotic pines, Austrian and Scotch, and occasionally appears in mugo pine. It is not a threat to the native ponderosa pine.

Perkins County

Browning ponderosa pine

This same looks more like winter-burn than brown spot, the disease discussed a few weeks ago in the *Update*. Winter-burn shows up as browning along the entire needle or brown tips and green base, usually lacks the banding and resin soaked spots.

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