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Landscape Alert

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Calico scale going wild in some places

Dave Smitley, Entomology

I received a few frantic phone calls this week about some serious infestations of calico scale. One call came from Canton, a suburb of Detroit, and another from East Lansing. Although calico scale has been a problem in California since 1960, it first came to our attention about five years ago when some localized heavy infestations were reported. It seems to be spreading to more places and causing more problems in Michigan now. A wide variety of tree types can become infested, but most of the problems tend to be reported on ornamental stone fruits (*Prunus*

spp.), maples (*Acer spp.*), honeylocust, elm, pear, dogwood and crabapple. To give you an idea of how many types of trees may become infested, I asked Pete Murray (MSU Botanical Technician) to generate a list of the infested trees near the botanical gardens on the MSU campus. Here is a list of trees where scale insects were found on May 21 in the MSU Beal Garden area.

- All Maples (*Acer*)
- All Dogwoods (*Cornus*)
- Amelanchier
- All Magnolia
- Katsura (*Cercidiphyllum*)
- Musclemwood (*Carpinus*)
- Viburnum
- Honeylocust (*Gleditsia*)
- Cherry (*Prunus*)
- Redbud (*Cercis*)
- Tulip Tree (*Liriodendron*)
- Sweetgum (*Liquidambar*)
- Buttonbush (*Cephalanthus*)
- Poplar (*Populus*)
- All Birch (*Betula*)
- Walnut (*Juglans*)
- Sycamore (*Platanus*)
- Paper Mulberry (*Broussonetia*)
- Only Bur Oak *Quercus macrocarpa*
- Willow (*Salix*)



Photo 1. Dark trucks from honeydew and a thin canopy are signs of an infested tree.



Photo 2. Twigs covered with small brown to black and white bumps.



Photo 3. Black and white calico pattern is brightest in the spring as the females reach maturity, turning darker and more brown afterwards.

- All Buckeye (*Aesculus*)
- Kentucky Coffee Tree (*Gymnocladus*)
- Hackberry (*Celtis*)
- Hickory (*Carya*)
- Ironwood (*Ostrya*)
- Sassafras
- Crab Apple (*Malus*)
- Hawthorn (*Crataegus*)
- Witch-hazel (*Hamamelis*)
- Paw Paw (*Asimina*)

- Spicebush (*Lindera*)
 - Elm (*Ulmus*)
- Infested trees may have dark trunks from the honeydew and a thin canopy (Photo 1). Closer examination reveals that twigs are covered with small brown to black and white bumps (Photo 2). Each bump is a female scale insect. The black and white calico pattern is brightest in the spring as the females

reach maturity, turning darker and more brown afterwards (Photo 3). Although heavy infestations can be a serious nuisance because of the dripping honeydew, trees rarely die due to the scale insect alone. Treatments for prize trees or trees growing over driveways or decks are discussed later in this issue. **IPM**

Lecanium scale and cottony maple scale on honeylocust, silver maple and other street trees

Dave Smitley, Entomology

Localized outbreaks of *Lecanium* scale and cottony maple scale are continuing in some cities in southeast Michigan, northwest Michigan and in Saginaw and Midland counties where mosquito spray programs tend to boost the scale populations there to higher levels by suppressing parasites and predators. In these outbreak areas, the tree trunks and branches often look very dark from black fungi growing on the sticky honeydew that rains down from the scale insects. Small branches and twigs are covered with small brown bumps; the scale insects themselves.

Cottony maple scales will produce white cottony egg sacs by mid-June.

Although a heavy infestation may cause some thinning of the canopy, it rarely results in tree death. The biggest problem is the honeydew dripping down on decks, picnic tables, lawn chairs and parked cars. Honeydew is the sugary, liquid waste excreted by scale insects. A considerable amount is excreted because scale insects need to ingest lots of sap from trees in order to get the amount of protein they need for growth and development. This creates a large excess of sugars that are

excreted in the honeydew. Peak levels of honeydew are produced in late May and early June, and then subside during egg development and crawler emergence in June and July. Dripping honeydew may become a problem again in late summer and early fall as the scale insects grow larger. Treatments are discussed below.

Read this *Lecanium* scale bulletin from Vermont Forestry for more information: http://www.uvm.edu/~pmrc/lecanium_scale_info_sheet.pdf **IPM**

Treatments for Calico scale, cottony maple scale and *Lecanium* spp. scales

Dave Smitley, Entomology

In most cases, it is not necessary to use an insecticide for soft scales on street trees. The outbreak should subside in a year or two when parasites and predators catch-up with the scale. However, some of the calico scale outbreaks are severe and seem to persist many years, and in some places where mosquito sprays are used, the outbreaks tend to persist longer and are more severe. In an outbreak area, it may be desirable to treat an individual tree over a deck or driveway to avoid the sticky mess from dripping honeydew.

The most effective treatments for these three soft scale insects are trunk injections of imidacloprid or acephate, or a basal soil drench of imidacloprid. Other systemic insecticides like dinotefuron and clothianidin are being evaluated at this time and may also be effective. Unfortunately, imidacloprid basal soil applications and imidacloprid

trunk injections at this time (late May) work very well to prevent the development of the next generation of scale insects this summer, but they do not work fast enough to prevent the rain of honeydew in early to mid-June.

In contrast, trunk injections of acephate will be more effective now, but may not work as well on the next generation of young scales that will be developing in July and August. For large trees, it is best to contact a professional landscaper or arborist for a trunk injection treatment. Homeowners also have the option of using imidacloprid products that can be purchased at garden centers, like Bayer Tree and Shrub Insect Control. This product is mixed in a bucket of water at the rate of 1 oz per inch of trunk circumference, and then poured around the base of the trunk. When trees have a trunk diameter

greater than 12 inches (greater than 38 inches circumference), two drenches at least a week are recommended. Basal drenches can be made any time from late May to early July, but they will not be effective for at least two weeks after the drenches are made.

For more information, visit: www.tree-doc.com. **IPM**

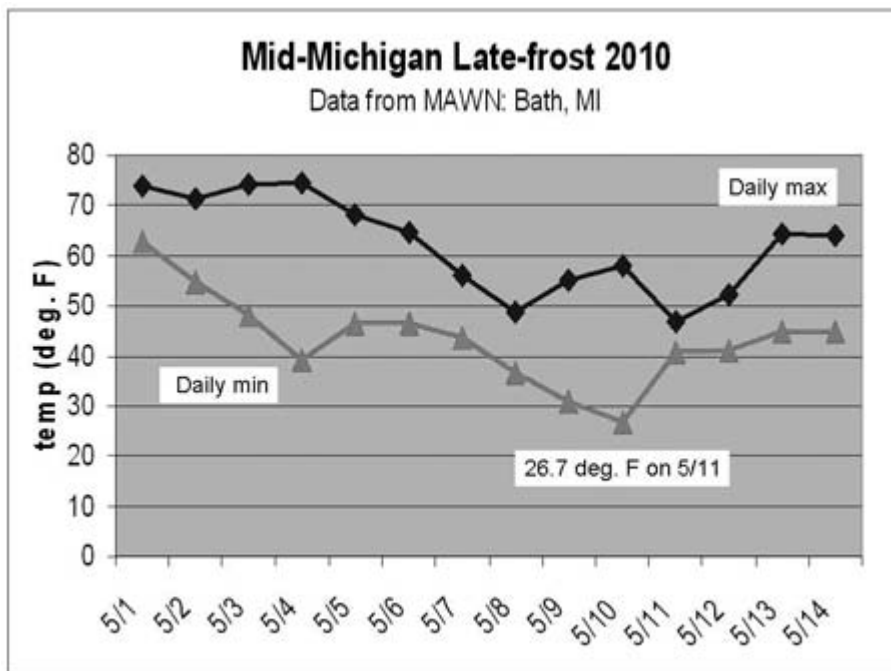
Read the Landscape Alert on-line to see color photos:
<http://ipmnews.msu.edu/landscape/>

Late frost damage

Bert Cregg, Horticulture and Forestry

Our unusually warm early spring and rapid accumulation of growing degree days set the stage for widespread late frost damage as temperatures dipped well below freezing in many locations in the Lower Peninsula on May 10 and May 11 (see Figure 1). Note that damage associated with freezing temperatures is referred to as “late frost” or “late freeze” injury because it occurs late in the plant’s hardening-dehardening cycle.

Year in and year out, late frost damage is one of the most common environmentally-caused plant problems we deal with in Michigan. Even without our early warm-up, temperatures in the 20’s during the second week of May would have caused some damage to many plants. For most nursery and landscape plants the principle symptom we’ve seen is browning or die-back of newly emerged shoots and leaves (see photos). In many cases lows hovered just around the critical temperatures to cause damage. This evidenced by “frost lines” where cold air settled in frost pockets, and the lower parts of trees were damage but the upper parts weren’t. Homeowners or landscapers may also observe that exposed plants were damaged, but similar plants closer to buildings or protected areas were not.



The significance of the damage depends on several factors. Most hardwood trees and shrubs that experienced browning leaves or shoots can usually grow through the damage. Browning of flowers on ornamentals, such as magnolias, means the show’s

over for the year, but the impact is not long-term. Die-back on shoots of landscape conifers and Christmas trees can be a little more problematic, especially if the trees are intended for sale soon. The trees will not re-flush until they have had a chance to set new buds for the next year. **IPM**

Mowing pattern

Kevin Frank, Crop and Soil Sciences

I’m often asked about the effect of following the same mowing pattern on turfgrass. I always recommend trying to vary the pattern throughout the year even for relatively lightweight push-mowers to avoid causing localized compaction and ruts on the areas where the wheels always track. For larger commercial riding mowers, the risk of compacting the soil and ultimately affecting turf quality is even greater if the mower is always following the same pattern.

I recently visited a local condominium complex where it was very obvious that due to the size of the mowing equipment and design of the lawn the mowers were always following the same track. Tracks were very apparent. The tracks were compacted; the area between the tracks had a thick thatch layer. My guess based on the age of the complex was that they have probably been mowing in this same pattern for at least 10 years. The solution



Noticeable mowing pattern in lawn.

would be to core cultivate to alleviate the compaction and then to try and change that mowing pattern. **IPM**

Memorial Day lawn care

Kevin Frank, Crop and Soil Sciences

Although the official start of summer is a month away, if the weather forecast

for next week comes true, it’s sure going to feel like summer. The Memorial Day

weekend (May 29-31) is usually a good calendar reminder to consider a fertilizer

application for the lawn. If you fertilized earlier this spring, there's a good chance the turf has burned through that fertilizer already, and as June approaches sustaining the growth and quality of your lawn will likely rely on another fertilizer application. For this application, look for slow release fertilizer products

such as coated ureas, methylene ureas or natural organics. Avoid single, heavy dose applications of water-soluble fertilizers such as urea, they'll give you that quick response, but may result in reduced drought hardiness and increased susceptibility to diseases.

If you have an in-ground irrigation

system, now would be a great time to check out all the heads to make sure everything is functioning. You may think this was an early spring activity, which it should have been, but depending on the rainfall pattern in your area many of these systems may not have had a lot of use yet this spring. **IPM**

Forest tent caterpillar in northern Lower Peninsula

Duke Elsner, Grand Traverse County MSU Extension

The forest tent caterpillar, *Malacosoma disstria*, is having a good year in many areas of the state, but the infestation sites in the northern half of the Lower Peninsula are at much higher populations than the sites being reported in the southern parts of the state. Pockets of heavy infestation and defoliation have been reported from Grand Traverse, Leelanau, Benzie, Kalkaska and Crawford counties. The sites of greatest defoliation in 2009 in Wexford County appear to be back down to low, non-outbreak levels this year.

It has been over 20 years since the last significant outbreak of forest tent caterpillar in the Grand Traverse Bay region. In that time, our residential and recreational human population has grown tremendously, largely due to people moving here from downstate and out-of-state. For these folks with no experience in the area, the forest tent caterpillar outbreak is a terribly shocking event, as they have no reason to believe the high populations will not continue indefinitely. I've been spending a great deal of time explaining how natural factors will eventually bring the populations back down and the forests will survive.

One thing that is a bit different about the 2010 infestations as compared to 2009 is that we are seeing a much wider range of larval instars active at the same time in 2010. This is probably due to our widely fluctuating temperatures in March through May. Some egg masses hatched as early as the first week of



Forest tent caterpillar.



Forest tent caterpillar webbing on tree.

April, but a lot of them did not hatch until well into May. People have been asking for some idea when the onslaught



Forest tent caterpillar on house.



of caterpillars will end for the year, and it has been very hard to predict just when that might be. **IPM**

Carpet beetles

Howard Russell, MSU Diagnostic Services

Carpet beetles are the ultimate household scavengers and most homes

older than two years probably have resident populations of carpet beetles.

The reason being is that the larval stages can eat most everything of plant



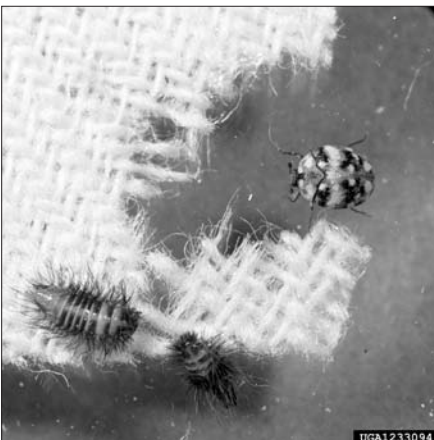
Clemson University, Courtesy of forestryimages.org

There are three common species of carpet beetles in Michigan homes: the carpet beetle, the varied carpet beetle and the furniture carpet beetle. This photo shows the adult and larva of the ubiquitous black carpet beetle, *Attagenus unicolor* (Dermestidae).

and animal origin, both manufactured and naturally occurring. Carpet beetle larvae prefer dried protein, so they like to eat dead insects, hair, dander, woolen rugs and clothing, silk clothing, wool carpeting, felts, skins, furs, feathers, upholstered furniture, wool blankets, leather, and dried meats, beans, peas, corn, wheat, rice and many other seeds and seed products. These insects also occur outdoors where they feed in and under dead animals and in the nests of birds, wasps and bees.

The larvae or grubs are small, reddish-brown and hairy. Larvae develop in dark, undisturbed locations and under normal conditions require about a year to complete their life cycle. Larvae are responsible for all of the feeding damage. Adults are tiny oval-shaped beetles that are often covered with scale-like seta (hairs). They emerge in the spring and commonly congregate on window ledges. Outside, the beetles are commonly found on flowers where they feed on pollen.

Carpet beetles are difficult to control because most times it is difficult to locate the origin of the infestation. The best way to combat carpet beetles in homes is to reduce their food sources. Rooms should be cleaned often enough to prevent the accumulation of hair, dander and other carpet beetle food materials. These insects are commonly found along the edges of wall-to-



Clemson University, Courtesy of forestryimages.org

The furniture carpet beetle, *Anthrenus flavipes* (Dermestidae): adult and larva.

wall carpet where hair and dander accumulate; and in wool carpets under heavy furniture; and in heating system ducts. Another source of carpet beetles is wall voids (the area inside walls between studs) where dead insects accumulate. Abandoned nests of birds, rodents, wasps and bees that are in or near the house may also serve as the source of carpet beetles.

The main concern of carpet beetles in most cases is not carpets but clothing and other items made of proteinaceous materials such as wool, fur, feathers or silk. For this reason, woolens that have been in storage and undisturbed for over a year should be routinely checked for damage and signs of insects. Carpet beetle larvae are responsible for the nipped treads and tiny holes we find in wool sweaters, coats and pants. Often their cast skins can be found on the clothing or closet shelves.

Preventing carpet beetle damage to clothing begins with dry cleaning or laundering before storing it for the summer. Not only will this kill any carpet beetle larvae present, but laundering also makes the clothing less nutritious for the larvae. We actually enhance the nutritional content of clothing just by wearing it because of the oil and salt that rubs off our bodies and is absorbed by our clothes. We probably improve the taste of the sweater too because we all know that food tastes better with the addition of salt and oil.

After laundering, place cleaned woolens in an insect-free chest or plastic tote that has a tight fitting lid. This



Pest and Diseases Image Library, Australia.

The varied carpet beetle, *Anthrenus verbasci*. Note the white and yellowish scales that give this beetle its distinctive markings.



J. Berger, forestryimages.org

A varied carpet beetle larva. Carpet beetle larvae are pretty easy to identify because they tend to be the only brown hairy larvae found in homes.

should protect the woolens until fall when we resume wearing these clothes. Moth balls placed in an envelope or wrapped in paper can be placed in totes containing woolens that are likely to be in storage for long periods of time. Woolens that are likely never to be worn again should be donated to a worthy cause.

Persistent insecticides registered for use inside homes such as Bayer's Advanced Home Insect Control or Ortho Home Insect Defense Maxx, can be applied in storage areas, edges of carpeting, baseboards, cracks and crevices to help control these pests. Great care should be taken when using these poisons in the home. Be sure to read and follow all the instructions and safety precautions found on the pesticide label before using any pesticide. **IPM**

First reports of tomato late blight in Louisiana, Florida and Maryland

Willie Kirk, Plant Pathology

Late blight has been confirmed on tomatoes in Louisiana, Florida and Maryland. Although a long way from Michigan, last year's outbreak in the northeast of the United States has been associated with tomato seedlings imported from southern states. Potato and tomato growers should be aware that the disease can overwinter efficiently on discarded potato tubers and that there is an increased risk of late blight the year following an outbreak. Current updates for late blight risk are updated daily at <http://www.lateblight.org/forecasting.php> where some images of tomato late blight can be viewed.

From the Potato Disease Management Network on May 16

"Scientists at the Louisiana State University AgCenter recently confirmed the presence of late blight on tomatoes in home gardens in Terrebonne, Lafayette, Livingston and Tangipahoa parishes. Symptoms include

black lesions on stems and petioles, blackening of the fruit, and dark, dead areas on the foliage.

"The disease is probably being introduced on infected transplants, so be sure to check tomato plants for symptoms before you buy them," said LSU AgCenter plant pathologist Don Ferrin.

Experts across the state are working to remedy this situation as quickly as they can, Ferrin said.

"I recommend that home gardeners remove and destroy any infected plants," he said. "Additionally, as a preventative measure, I suggest they spray their plants on a regular basis with fungicides such as chlorothalonil, mancozeb, copper or a combination of mancozeb plus copper."

When using the mixture of mancozeb and copper, allow it to sit for about 30 minutes before spraying and stir it frequently, he said, noting that

chlorothalonil may be used up to and including the day of harvest, whereas mancozeb cannot be used within five days of harvest.

"Because these fungicides are protectants only, thorough spray coverage is essential for control," Ferrin said.

"A number of fungicides are available at garden centers," he said. "Be sure to read the label carefully to be sure the product is intended for use on tomatoes, and apply the material carefully according to label directions."

"Late blight also occurs on Irish potatoes, so home gardeners may also want to spray them as a preventative measure," Ferrin said. "Fungicide use rates for tomatoes may not be the same for Irish potatoes, so be sure to check the label.

"With any luck, the warm weather that we're now experiencing will slow disease development," he added." **IPM**

Weather news

Jeff Andresen, Agricultural Meteorology and Geography

Major changes in the upper air pattern across North America are currently underway that will lead to an extended period of much warmer and summer-like weather across Michigan and the Great Lakes region. This pattern will feature an upper air troughing feature across western sections of the United States with a large ridge in place across the Midwest and east, resulting in southwesterly flow over Michigan.

In the short term, the area of low pressure that brought rain to portions of the state Friday, May 21, is expected to gradually dissipate as it moves northeastward into Ontario Saturday, May 22. Some scattered showers and

a few thundershowers will be possible through early evening Saturday, mainly across southern and eastern sections of the state. High pressure is forecast to move back into the region by late Saturday and bring warm and dry weather Sunday through the middle of next week.

High temperatures will reach the 70's Saturday, warming to the 80's statewide Sunday through the middle of next week. High temperatures may near the 90°F mark at some locations early next week. Low temperatures will generally range from the mid and upper 50's to the low 60's.

The upper air pattern mentioned

above is expected to continue for much of the remainder of May, which is strongly reflected in the latest NOAA medium range outlooks. Both 6-10 day and 8-14 day outlooks covering May 26-30 and May 28 through June 3 call for above normal mean temperatures state- and region-wide. Precipitation totals are forecast to range from near normal levels across northern and central sections of the state to below normal totals over southeastern sections. Given strong agreement of the major forecast guidance tools, forecaster confidence in the outlooks is considered much higher than normal for the season. **IPM**

Michigan State University Cooperative Agricultural Weather Service
Cumulative Precipitation Summary For 05/19/2010*

STATION OR DISTRICT	ACTUAL AND PREDICTED DEGREE-DAY ACCUMULATIONS SINCE MARCH 1 2010 (*)				PRECIPITATION TOTALS SINCE				04/01/10 (since Apr. 1)	
	BASE 42 BE DEGREE-DAYS		BASE 50 BE DEGREE-DAYS		05/06/2010 (Last 2 weeks)		04/22/2010 (Last 4 weeks)			
	AS OF 2009	BY 2010	BY 2009	AS OF 2010	Actual	Dev. Norm.	Actual	Dev. Norm.	Actual	Dev. Norm.
WEST UP NORMS**	323	392	465	156	196	237	262	347		
MARQUETTE	236	295	356	90	121	152	262	347		
STEPHENSON	236	295	356	90	121	152	262	347		
EAST UP NORMS	238	446	505	93	195	230	262	285		
CHATHAM	240	501	568	80	212	250	285	321		
SSMARIE	240	501	568	80	212	250	285	321		
N. W. LP NORMS	395	472	553	188	234	281	332	321		
LAKECITY	386	537	602	176	245	284	332	321		
PELLSTON	309	495	555	138	237	275	321	321		
N. E. LP NORMS	365	440	516	173	217	261	317	317		
ALPENA	344	517	578	154	238	273	317	317		
HTNLAKE	418	587	656	188	282	323	375	375		
OSSINEKE	357	537	606	163	251	288	334	334		
ROGERCITY	357	537	606	163	251	288	334	334		
W. CENT. LP NORMS	473	557	645	237	289	343	417	417		
FREMONT	479	668	740	212	316	359	417	417		
CENT. LP NORMS	504	592	683	256	310	366	411	411		
ALMA	479	621	706	217	303	349	411	411		
WHEELER	461	603	676	214	290	334	393	393		
E. CENT. LP NORMS	499	586	676	252	305	360	438	438		
AKRON	446	602	676	202	290	335	394	394		
BADAXE	429	594	667	197	294	339	400	400		
PIGEON	444	608	683	206	302	348	411	411		
SAGINAW	531	700	787	247	356	411	484	484		
SAGVALLEY	461	612	688	208	296	342	403	403		
STANDISH	412	592	665	188	292	337	397	397		
S. W. LP NORMS***	598	694	795	315	376	438	524	524		
ALLENDALE	475	629	691	206	280	313	367	367		
GRAPIDS	632	792	870	312	399	447	524	524		
GULLLAKE	737	871	957	380	473	529	621	621		
SOUTHBEND	711	839	922	365	424	474	556	556		
S. CENT. LP NORMS	585	679	776	309	367	427	505	505		
ALBION	596	743	819	290	376	421	491	491		
CERESCO	597	756	833	291	387	433	505	505		
COLDWATER	635	768	846	315	385	431	503	503		
IONIA	500	644	710	231	307	343	401	401		
LANSING	599	757	834	283	381	426	498	498		
OMOSSO	516	655	722	240	318	356	415	415		
S. E. LP NORMS	564	656	752	289	347	407	480	480		
FLINT	581	726	800	279	369	414	480	480		
HELL	585	711	784	285	356	400	466	466		
LAPEER	543	673	742	259	343	385	443	443		
PETERSBURG	581	749	826	275	381	428	496	496		
ROMEO	541	687	757	250	335	376	436	436		
TIPTON	611	718	792	303	367	412	478	478		
TOLEDO	722	854	942	364	451	506	587	587		

* Since weather data for some agricultural stations are not available prior to April 1st, GDD values for those stations during February and March are estimated with closest available station data.
** District normals were calculated as the mean of daily GDD totals at several stations within each district for the period 1951-1980.
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