Insect/Disease Information

DECIDUOUS TREES

Lilac-Ash Borer

Hosts: lilac and ash; occasionally privet and mountain-ash

• treat susceptible trunks now, and repeat once or twice every 2-4 weeks

Lilac-ash borer adults have just started to emerge and females are laying eggs on the bark of ash trees and lilac. Green and white ash (Fraxinus) are the most susceptible. Sometimes, mountain-ash (Sorbus) and privet are attacked.

Lilac-ash borer does not directly kill trees, but repeated infestations can cause branch dieback and can leave trees susceptible to breakage in storms. Infested trees will have round exit holes on the bark, sawdust-like frass near the holes or at the base of the tree, and rough, swollen, cracked bark, mostly near branch crotches.

This insect overwinters as a larva inside the host plant and pupates in spring, emerging as an adult moth, usually in early to mid May. Emergence and egg-laying continues for about 6 to 8 weeks.

Treatment:

Healthy plants are able to withstand minor infestations, while stressed plants are more susceptible to attack and failure, so give trees optimal water and fertilizer, and prune properly.

Insecticides target the adults. Small trees can be treated by the home gardener, but in order to get thorough coverage on large trees, treatments should be made by a licensed pesticide applicator.

Residential: Hi-Yield permethrin products, Spectracide Triazicide (lambda-cyhalothrin), carbaryl products

Commercial: Acelepryn (chlorantraniliprole), permethrin (Astro, Covert, Waylay), Sevin, or Onyx (bifenthrin)
Oystershell Scale

Hosts: many deciduous ornamentals

- treat crawlers now

Crawlers of oystershell scale are just starting to emerge in northern Utah. A treatment should be made on plants that are declining in vigor. A second treatment may be required 7-14 days later, depending on the infestation.

Oystershell scale is an armored scale with two generations of crawlers. Dozens of deciduous plants can be attacked. There is a second generation later in the season.

Treatment:
- Residential: horticultural oil (1%), neem oil, Hi Yield permethrin products, insecticidal soap (many brands), Spectracide Triazicide (lambda-cyhalothrin)
- Commercial: Dinofuran (Safari) as a soil injection (imidacloprid is not effective); Distance (pyrifoxfen), Talus (buprofezin), Tempo (cyfluthrin), or other pyrethroid

Honeylocust Borer

Hosts: honeylocust

- if positively identified, treat trees now

Honeylocust is a widely planted tree that we typically don’t think of as having problems with borers. But recently, trees in the Salt Lake area were found infested with honeylocust borer (Agrilus difficilus), and adult beetles were seen emerging.

Honeylocust borer is a flatheaded (metallic) beetle related to the pacific flatheaded borer, bronze birch borer, and emerald ash borer (which is not in Utah). It only attacks honeylocust, and is not to be confused with the locust borer that only attacks black locust.

Trees that are under drought stress, or newly planted trees are the most susceptible. Mature, healthy, and properly planted trees are rarely attacked. Starting in early to late May (depending on the temperatures of the season), female adults lay eggs on the trunk or larger branches and cover them with a frothy white substance that eventually hardens.

The larvae hatch and then bore into the cambium where they create shallow, meandering tunnels. Tree sap will ooze out of the entry site and then harden into a mass of gum. Repeated infestations gradually cause decline and dieback of twigs and branches in the crown.

Treatment:
- Management relies on prevention. Keep trees healthy with optimal watering and fertilizer so they can withstand attack.

Insecticides should target the adults. Although the larvae of flatheaded borers can be killed by systemics, they should not be used on honeylocusts, as these trees attract many foraging insects when in bloom.

- Residential: Hi-Yield permethrin products, Spectracide Triazicide (lambda-cyhalothrin)
- Commercial: Acelepryn (chlorantraniliprole), permethrin (Astro, Covert, Waylay), Onyx (bifenthrin)

Hackberry Psyllid

Hosts: hackberry

- no action needed (see images, next page)

There are many species of hackberry psyllids, the most common species forms small galls on the undersides of hackberry leaves. They overwinter as adults in protected areas, and fly in early spring to lay eggs on emerging leaves. After the eggs hatch, the young nymphs start feeding on the leaves, causing a small pocket that surrounds the insect and forms a gall. The psyllids feed inside the galls for the rest of the summer.

Infested hackberry can withstand a high population of psyllid galls, so control is not warranted.
Honeylocust Pod Gall Midge
Hosts: honeylocust
• treat foliage now if this pest is a problem

Bronze Birch Borer
Hosts: European and Asian species of birch
• treat trunks by May 18, and repeat once or twice every 2-4 weeks

Swellings (galls) on honeylocust leaves are fairly common in northern Utah, and are caused by a midge (*Dasineura gleditchiae*). The adult females are laying eggs now on the young honeylocust leaves. When the midge larvae hatch, their feeding causes galls to form, and each gall may contain one or several larvae.

Heavily infested leaves drop prematurely and when small branches die back, new shoots develop. There are several generations each year.

_Treatment:_
Residential and Commercial: carbaryl (Sevin)

Bronze birch borer adults will begun emerging in about 2 weeks in most areas of the Wasatch Front. There are two options for treatment: trunk sprays and systemic. If applied at the right timing, trunk sprays (as a preventive) are more effective. Systemics should already have been applied.

The larvae feed on cambium under the bark and after pupating, emerge from the tree, leaving a sideways D-shaped exit hole.

The adults primarily lay eggs on trees under stress (drought, nutrient, wounding, etc.), so keeping birch trees as healthy as possible can help the tree resist attacks. Birch trees do best in moist, organic soils.
Bronze birch borer is best prevented through bark sprays of insecticides to kill the adults and the eggs they lay. But an early spring soil injection of imidacloprid can kill the larvae as they feed.

**Treatment:**
- **Residential:** Keep trees healthy with optimal water and nutrients (including iron). We recommend hiring a commercial applicator that can reach all parts of a tall tree. Otherwise, use Hi Yield permethrin products; Sevin
- **Commercial:** Imidacloprid can be used as a soil drench, but ideally should be applied in early spring as the tree needs time for uptake. Studies have shown, however, that soil applications applied in late spring will also kill a certain amount of larvae within the tree. Trunk sprays include permethrin, bifenthrin, or carbaryl.

**Powdery Mildew**
**Hosts:** many deciduous ornamentals

- **treat foliage as necessary**

Powdery mildew is a fungal disease of many ornamental plants. It is common in Utah because the fungus thrives without water. It just needs some humidity to spread, and often, the amount of humidity naturally generated within a tree or shrub canopy is just enough to promote infections.

Just like there are many susceptible plants, there are also many species of fungi that cause powdery mildew. Most are host specific. For example, the powdery mildew on lilacs is a different species from that on maple or honeysuckle.

Powdery mildew prevents leaves from photosynthesizing to their fullest ability, resulting in stunted or twisted leaf growth, leaf chlorosis or necrosis, and leaf drop. Some plants, however, are not adversely affected by powdery mildew.

**Treatment:**
- **Residential:** Avoid overhead irrigation, improve air circulation between plants, and rake fallen leaves in the fall.
- **Commercial:** There are many fungicides, including Banner Maxx, Bayleton, Heritage, Regalia, Tourney

**CONIFERS**

**Spruce Spider Mite**
**Hosts:** spruce (primarily)

- **treat now if present in high numbers**

Unlike the two-spotted spider mite, the spruce spider mite is a cool season mite, active in spring and fall. They feed on juniper, blue spruce, dwarf alberta spruce, firs, arborvitae, and some pine. They are so tiny that you cannot see them with the naked eye, and require a 30x hand lens. They overwinter as red-colored eggs near the bases of needles, and start becoming active at this time of year.

If trees are showing symptoms–stippled and yellowed needles–look for the mites over the next few weeks by shaking a few branches over white paper. Look for the dislodged mites on the paper; they will be pale yellow in color. To confirm that the “black dots” on the paper are mites, you can smear them across the paper, or use a hand lens.

**Treatment:**
- **Residential:** neem oil, insecticidal soap
- **Commercial:** any miticide (do not use pyrethroids)
Pine Needle Scale

**Hosts:** Austrian, Scotch, mugo pines

- **treat crawlers now**

Pine needle scale is an armored scale that attacks two- and three-needled pines including Austrian, Scotch, and mugo pines. This scale is white in color, as opposed to the black pineleaf scale, which is dark gray. It is also not as serious a pest in Utah as the black pineleaf scale.

Pine needle scale feeds on mesophyll cells and sucks plant juices. As a result, the needles turn yellow and may drop prematurely. Most pines can tolerate a small to moderate-sized population.

Eggs of the pine needle scale hatch into crawlers starting in early May and continue for approximately two to four weeks. There is a second generation of crawlers in late July.

**Treatment:**

- **Residential:** horticultural oil (1%), repeated 1-2 weeks later, Ortho Tree and Shrub Insect Control Granules (dinotefuran)
- **Commercial:** pyrethroids, Azatrol (azadirachtin), Safari (dinotefuran)

**Tools for Pest Management**

The Utah TRAPs website, climate.usu.edu/traps, provides phenological information for ornamental pests and the plants they attack.

Phenology is the study of life cycle events and how they are related to seasons, climate, and heat accumulation (degree days). Some life cycle events include plant bud emergence, plant flowering, insect egg hatch, and more.

Many organizations, including the National Phenology Network, have studied phenological events for decades. This data is used for many research projects, including the demonstration of shifts in springtime activity by many plant and insect species to earlier dates over time.

The Utah TRAPs website helps to determine when to treat for certain ornamental pests by showing site-specific dates for key phenological events of pests. To help remember when those pests are active, the results also includes tree and shrub flowering times, which often coincide with the pest activity.
Utah TRAPs App

The Utah TRAPs app is free for iOS and Android devices. Use the search terms, “utah traps” to find it. It is based on the TRAPs website, climate.usu.edu/traps.

The app provides temp, precip, and wind information, plus timing dates of phenological events (flowering and insect activity).

1. On very first start, the app will open on a map. Find the location closest to you. Tap to select.

2. Your chosen location can become a “favorite” by tapping the down arrow next to the name, and then tapping the favorite star. Make it the default by tapping the dark square.

3. The main screen of the location will show weather data.

4. Tap “Select a Pest” at the bottom of the screen. Choose “Ornamental Pests”.

5. The app will show a scrolling table of pest and plant events for the prior week and the next 3 weeks.