

Number 2 - April 25, 2016

Fields and Lawns of Purple

It's been a great spring for the color purple. The redbud trees are in full bloom and looking glorious in the central part of the state now. But for several weeks, the ground has been purple as well due to a few cool season weeds that seem to be enjoying the moderate temperatures we've been having.

Henbit (*Lamium amplexicaula*) has perhaps been the most noticeable as it covered acres and acres of fields. It's starting to disappear however as the fields are now being sprayed, tilled, and planted. This cool season annual or biennial is generally low growing but can grow to 16 inches tall. As a mint, the stems are square shaped (4 sided). Additionally, stems are green to purplish, and may be smooth or hairy. The leaves are triangular to circular in shape and have palmate venation with a deep crinkle along the veins. The leaf edges have rounded teeth. Upper leaves are borne directly on the stem, while lower leaves are found on long petioles (opposite each other). Leaves are typically 1/2 to 1 inch long and hairy. They often begin as a dark green but tend to lighten in color as they age. The roots are fibrous. Henbit flowers are tubular, up to 3/4 inch long, pink to red to purple, and borne in whorls in the upper leaf axils (where the leaves meet the stems). To me, they look like pink puckered lips. Henbit normally produces flowers April to June but can sporadically until fall. Reproduction is by seed and by rooting stems.

Purple deadnettle (*Lamium purpureum*) is a winter annual with triangular shaped leaves which are less deeply lobed than those of henbit. They are attached to the stem by a short petiole. An important note is that the leaves and stems are often conspicuously red or purple which lends to the plant's name. This plant looks very similar in overall growth and leaf shape to spotted deadnettle, a perennial groundcover that has white markings on the leaves.

Groundivy (*Glechoma hederacea*) is another low growing weed with a purple flower. Commonly found in lawns and landscapes, it may be difficult to control but it is actually quite pretty when in full bloom. Also known as creeping Charlie, this plant is a creeping perennial with smooth (sometimes hairy) leaves in pairs on long petioles. Leaves are 1/2 to 1 1/2 inch in diameter. The leaf shape is round to kidney-shaped with a rounded toothed margin. The color is medium to dark green. Groundivy emits a minty odor when crushed or mowed. Flowers appear April to June and are small, lavender to blue-purple, and funnel shaped. They are found clustered in the leaf axils.

Common violet (*Viola* spp.) is a common lawn weed that many are familiar with. A dense stand of violets in bloom can be striking. This cool-season perennial spreads by seeds and by creeping rhizomes. The leaves are kidney-shaped to broadly oval, with a heart-shaped base

and a pointed tip. The margins are typically toothed. Leaf size is 2 to 4 inches. Stems are low growing typically but can reach 12 inches in height. Many colors of flowers exist from white to blue to purple to yellow. Cultivated types exist as well. Violet blooms early in the spring.

After hearing of Prince's passing earlier today, it seemed only fitting to write about purple weeds today. Maybe some will recall his song, "Purple weeds". Okay, that might have been purple rain but we are talking about weeds here and now that song is in your head. You are welcome. (*Michelle Wiesbrook*)

Spruce Needle Casts (Rhizosphaera and Stigmina)

Spring has barely sprung and the Plant Clinic has already received a number of samples this year. Most common have been spruce and pine samples with a variety of issues including the ever-present fungal needle casts (Rhizosphaera and Stigmina on spruce, Diplodia and Lophodermium on pine). Most evergreen samples have been diagnosed with environmental stress as a contributing factor. The last several years have been very stressful to plants, especially to evergreens with the historic wet spring last year, harsh winter the year before, and two years of drought a few years before that. We recommend taking an active role in maintaining plant vigor to reduce stress; many pest issues are found more frequently on stressed trees, and the trees are less able to repair any damage. Pruning out dead wood, lightly mulching the base of the tree, watering during periods of dryness during the growing season, and fertilizing appropriately are recommended practices

for keeping evergreens healthy. Proper planting is also critical for a well-established tree or shrub.

There are two major fungal needle casts of spruce in Illinois: Rhizosphaera and Stigmina. Both diseases produce similar symptoms: last year's needles turn purple-brown and eventually drop while the new growth is asymptomatic, leading to bare branches with tufts of green needles at the tips. Both diseases are associated with stressed trees. Colorado blue spruce are the most commonly affected spruce trees in Illinois, while white and Norway spruce tend to be more resilient. Needles must be observed under magnification to distinguish between the two fungi. Management focuses on increasing tree vitality. Fungicides are recommended for managing Rhizosphaera, but have not been shown to be very effective against Stigmina. Infection occurs 12-18 months before symptoms appear, so fungicides must be applied in early spring to protect the new growth from infection. Chlorothalonil is labeled for use against Rhizosphaera and available for homeowners to purchase. Fungicides containing chlorothalonil, chlorothalonil + thiophanate-methyl, copper, and copper hydroxide are also labeled for use against Rhizosphaera, though a commercial applicator's license may be required to purchase or apply these chemicals. Fungicides should be applied in early spring when the needles are half-grown (as soon as the bud caps fall off) and again when the needles are fully elongated. Several years of repeated applications may be required to manage these needle casts. We also highly recommend reducing stress on the affected trees to make them less susceptible to infection and help them recover from damage. (*Diane Plewa*)

Gymnosporangium Rusts on Eastern Red Cedar

Three *Gymnosporangium* rusts commonly affect trees in Illinois landscapes: Cedar-apple rust, Cedar-hawthorn rust, and Cedar-quince rust. As their name suggests, these pathogens require two hosts to complete their life cycles. A portion of each disease's life cycle occurs on Juniper (*Juniperus* spp.) hosts, while the remainder occurs on one of several deciduous host within the Rosaceae family. These rust pathogens overwinter Eastern red cedar and other *Juniperus* spp. as hard and pitted galls or spindle shaped swellings on young branches. Galls are light brown to reddish or chocolate brown and range from 1/8 inch to 2 inches in diameter (Image 1). Galls formed on evergreen hosts are not usually damaging, but serve as an important stage in each pathogen's life cycle. Currently, telial sporehorns are emerging from overwintering galls. Sporehorns have a distinct, orange, gelatinous appearance (Image 2). Sporehorns swell when moisture is present, then discharge spores as the dry. Discharged spores can be carried several miles by wind, but mostly infect susceptible trees within several hundred feet. Sporehorns exhaust all their spores approximately 30 days after apples and crabapples have bloomed.

Apples, crabapples, hawthorns and quince are some of the more commonly affected deciduous species. They are also the hosts we are most concerned about when we apply controls. Infections to deciduous hosts occur in the spring, beginning as apples and crabapples are in their pink-bud to early bloom stage. This timeframe coincides with the development of sporehorns on *Juniperus* spp. Cedar-apple rust and Cedar-hawthorn rust causes mostly aesthetic injury in the form of pale yellow to orange leaf spots, often with a reddish border. Severe

infection may result in moderate defoliation, especially during dry summers. Cedar-quince rust can be quite damaging to hawthorn, causing deformed swellings, galls, infected fruit, and stem tip dieback.

The most common control strategies for *Gymnosporangium* rusts in the landscape focus on protecting the deciduous hosts. These recommendations start with utilizing resistant or immune species and varieties. Though not always practical or feasible, infections to broad-leaved hosts can be reduced by removing unwanted host trees within a ½ mile radius. Overwintering galls can also be hand-picked or pruned from small junipers during the fall and winter months. Fungicide sprays are effective at protecting susceptible trees from infection, but are rarely utilized on Juniper hosts. They are commonly applied to deciduous hosts beginning at the pink-bud stage, with re-applications at labeled intervals until 1-2 weeks after petal fall. Fungicide options are listed in the Commercial Landscape & Turfgrass Pest Management Handbook and Pest Management for the Home Landscape.

The Report on Plant Disease (RPD): Rust Diseases of Apples, was updated this past December and can be viewed via the following link:

http://extension.cropsciences.illinois.edu/fruitveg/pdfs/802-Rust_Diseases-2015.pdf (Travis Cleveland)

Invasive Plant Phenology Report - April 2016

The University of Illinois Extension Forestry produces a monthly invasive plant phenology report that gives information on the development of invasive plants across Illinois, informing readers about what is in

bloom, leafing out, setting seed, senescing in different regions of the state.

Feel free to add to the knowledge by letting us know what the invasive plants are doing in your area by commenting on this post.

Compiled by Christopher Evans, Extension Forestry and Research Specialist with the Department of Natural Resources, this University of Illinois Extension Technical Forestry Bulletin series provides monthly reports on the development of invasive plant species in Illinois. Reports are summarized by region and produced from field observations collected between the 8th and 14th of each month.

Phenology is the study of seasonal natural phenomena. This observational project tracks the phenology of invasive plant species in Illinois throughout the growing season, noting when plants initiate growth, start flowering, ripen seeds, become dormant, etc. Data on the phenology of invasive plants is critical information for the development of effective management programs.

The report can be read in its entirety here: <https://uofi.app.box.com/s/hdd0pryf1tu7ujf3xnk30aloefmfxucc> (Kelly Estes)

Modified Growing Degree Days (Base 50°F, March 1 through April 21)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	155	107	192	247
St. Charles	153	108	187	238
DeKalb	158	123	198	258
Monmouth	203	150	247	311
Peoria	220	169	269	338
Champaign	243	169	292	361
Springfield	264	194	318	394
Perry	266	196	316	385
Brownstown	261	230	321	402
Belleville	351	247	413	495
Rend Lake	362	271	430	519
Carbondale	360	263	425	509
Dixon Springs	389	289	459	549

Insect development is temperature dependent. We can use [degree days](#) to help predict insect emergence and activity. Home, Yard, and Garden readers can use the links below with the degree day accumulations above to determine what insect pests could be active in their area.

[GDD of Landscape Pests](#)
[GDD of Conifer Pests](#)

Degree day accumulations calculated using the [Illinois IPM Degree-Day Calculator](#) (a project by the Department of Crop Sciences at the University of Illinois and the Illinois Water Survey). (Kelly Estes)

Woody Oak Galls

There are three common stem and twig galls on oaks that become woody. Gouty and horned oak galls cause tree dieback and can kill heavily infested trees. Oak bullet gall can cause some dieback, but is not likely to cause serious tree harm. All three are caused by gall-making wasps that attack the tree at this time of year during bud elongation.

Oak bullet gall, *Discholcaspis quercusglobulus*, looks like brown, woody marbles on the branches of white and bur oak. Although clusters of galls occur, they do not coalesce like those of gouty and horned oak galls. They initially are greenish, turning yellowish and then brown. Oak bullet galls do not typically cause dieback of the twig past the gall area and are most common in the northern third of Illinois.

Gouty and horned oak galls circle small branches and can girdle them, killing the branch out past the gall. The tiny wasp that causes horned oak gall, *Callirhytis*

cornigera, attacks pin, scrub, black, black-jack, and water oak. Horned oak gall is common in the southern part of the state from about Mattoon and Litchfield south. The gouty oak gall wasp, *Callirhytis quercuspunctata*, attacks shingle, scarlet, red, pin, and black oak. Gouty oak gall is most common in central Illinois from Springfield to Peoria.

Adult wasps of horned oak gall emerge in spring to lay eggs on the major veins of oak leaves. The resulting larvae cause oblong, blisterlike galls to develop in the veins. Adult wasps emerge from these galls in July, mate, and the females lay eggs in young oak twigs. Young twig galls appear on the twig as small, greenish to yellowish to brown marbles, similar in appearance to oak bullet galls. They eventually coalesce into roundish, brown galls up to 2 inches in diameter. It takes two or more years for these large galls to form. The galls are covered with 1/8-inch-long horns in the spring through which the adult wasps emerge.

Gouty oak gall apparently has a similar life cycle to that of horned oak gall, but the gall has no horns and adult wasps emerge through 1/16-inch holes in the side of the gall.

Oak bullet gall can be ignored as it is unlikely to cause serious damage. They can be rubbed off where they are an aesthetic problem.

On small trees, prune off gouty and horned oak galls and destroy them, par-

ticularly in the northern third of Illinois. Their killing of branches can cause the tree to become misshapen. Pruning is typically all that is needed of gouty oak gall as those too high to easily reach are unlikely to cause serious tree injury.

Horned oak gall pruning may not be practical in southern Illinois, where the galls are common. Particularly in locations with large numbers of infested oaks nearby, removal of galls may have little effect.

Insecticide applications do not provide predictable control of horned oak gall. Bifenthrin (Onyx) sprayed at leaf expansion has provided control for some but not others. Some arborists and landscapers have seen good results with application of imidacloprid (Merit, others). If applying imidacloprid to the soil, remove dead organic matter such as leaf litter, mulch, or turf before drenching or inject the insecticide beneath the dead organic matter. Imidacloprid adsorbs to dead organic matter, reducing its availability for root uptake.

Although many trees have been killed in southern Illinois, we are generally powerless to prevent it. Keep the trees healthy with irrigation during droughts and fertilization where warranted. Even so, apparently healthy trees may succumb to the gall infestation. Biological control will eventually be achieved by parasitic wasps. These should naturally increase and control the gall wasps. To my knowledge, they are not available commercially. (*Phil Nixon*)