

THE PURDUE LANDSCAPE REPORT

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Even Evergreen Needles Don't Last Forever

(Rosie Lerner, rosie@purdue.edu)

Although most “conifers” are “evergreen”, a few species are “deciduous”. Confused? Perhaps a review of these terms will help.

conifer = cone-bearing

evergreen = retains at least some green foliage year-round

deciduous = all leaves die and are shed annually at same time

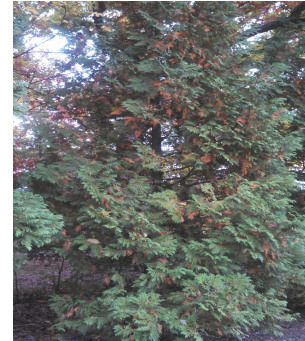
Evergreens provide green color all year long but that doesn't mean that the individual needles live forever. Evergreens shed their older needles to make room for new growth, but what makes these plants evergreen is that they retain some foliage all year long instead of shedding all of the leaves at once.

Conifer needles have varying life spans, depending on the species and environmental conditions. White pine and arborvitae needles live for 2-3 years, Austrian and Scots pine needles live for 3 years, red pine needles live for 4 years. Firs, Douglas fir, and hemlock needles last about 3-4 years. Spruce needles live 3-10 years depending on the species, with most lasting about 5 years.

Some species of evergreens have a more noticeable leaf drop than others. In autumn, white pine will drop many of their 2-year old needles all at once, which can be quite alarming if you don't realize that it's perfectly normal. Arborvitae also has a very noticeable needle shed as older branchlets turn brown and remain on the tree for a while before shedding.



White pine fall needle shed. Photo Credit: Rosie Lerner, Purdue Extension



Arborvitae fall branchlet shed. Photo Credit: Rosie Lerner, Purdue Extension

How to distinguish this from winter desiccation injury or severe drought injury? The biggest difference is in the pattern of which needles are browning. For normal needle shed, it is the oldest, innermost needles. For winter injury and drought, it is more likely to affect the younger, more outward exposed needles. Or a pattern of progression of the browning if one is paying close enough attention.

The older needles of yew shrubs will turn yellow and drop in late spring or early summer. Broad-leaved evergreens such as rhododendrons drop their 2- to 3-year-old leaves in late summer and early fall.

On other species, needle drop occurs gradually with a small number of needles through the year and is less noticeable.



Bald cypress are deciduous Photo Credit: Rosie Lerner, Purdue Extension



Bald cypress alternate deciduous branchlets Photo Credit: Rosie Lerner, Purdue Extension

Hot, dry weather can cause many plants to drop needles early. Inner and lower needles are the oldest. So if your evergreens appear to be losing large numbers of needles, check to see if there is a uniform pattern of which needles are dropping. And if it is a white pine or arborvitae in autumn, they are most likely just doing what comes naturally.

The deciduous conifers we are most likely to see in our area include bald cypress (*Taxodium distichum*) and larch (*Larix sp.*) and occasionally dawn redwood (*Metasequoia glyptostroboides*). They have striking yellow to orange to reddish brown fall color when all of the needles turn simultaneously.



Dawn redwood opposite deciduous branchlets Photo Credit: Purdue Arboretum



Larch needle clusters Photo Credit: Purdue Arboretum

Taxodium has needles spirally arranged, alternate deciduous branchlets.

Metasequoia has opposite needle arrangement on deciduous branchlets.

Larix has many (30-40) needles attached in bundles on short spurs.

Event

(Gail E. Ruhl, ruhlg@purdue.edu)

Tubakia leaf spot, a fungal disease, infects all species of oak. However, oaks in the red oak group such as black, red and pin oak, appear to be most susceptible. Symptoms on oak include small to large dark brown or reddish-brown spots or blotches. (Figs 1,2,3)



Figure 1



Figure 2



Figure 3

Spotting that occurs on leaf veins may cause large extended areas of dead leaf tissue along the veins (Fig 4). Marginal leaf scorch may also be seen to contain lesions of Tubakia (Fig 5). If trees are heavily infected with Tubakia leaf spot, premature defoliation may occur, however, the disease usually develops so late in the season that overall health of the tree is not affected. Fungicide sprays are not recommended. Cultural practices include maintaining good tree vigor by watering during drought stress periods and fertilizing trees appropriately.



Tubakia Leaf Spot on Oak—A Yearly

Figure 4



Figure 5



Figure 6

A type of anthracnose known as spot anthracnose, may also be present on leaves infected with *Tubakia*. Spot anthracnose appears as tiny (about 1 mm) black leaf spots (Fig 6) that may be scattered across the leaf but tend to be more numerous near major leaf veins. When several spots occur close together that area of the leaf may die but little overall stress is caused by this minor fungal disease.

Yellowing (chlorosis) of leaf tissue, often accompanied by small, dark brown or reddish-brown, interveinal speckling and spotting (not fungal) is another common symptom on pin oak that accompanies *Tubakia*.



Figure 7

Yellowing (Fig 7) on pin oak could point to a nutritional problem. In high pH soils iron and manganese are less available for root uptake and may be deficient in the tree while still present in the soil. Nutrient tests of yellow leaves along with soil testing can help determine if this is the case. If you have questions on where to send soil for testing you may contact the [PPDL](http://www.purdue.edu/ppdl) for a compilation of commercial testing labs.

Leaf Diseases BP-143-W

<http://www.extension.purdue.edu/extmedia/BP/BP-143-W.pdf>

Fertilizing Ornamental Plants HO-140

<https://www.extension.purdue.edu/extmedia/HO/HO-140-W.pdf>

Arrival of cool weather brings out cool season spider mites

(Cliff Sadof, csadof@purdue.edu)

What are spider mites? Most common trees, shrubs and flowers are susceptible to injury by one or more species of spider mites. Two spotted spider mites feed on a wide variety of plants. Their capacity to injure plants is representative of other species.

Summer is over. Why worry about spider mites now? Even though you can put away your mite controls for warm season mites on most flowering plants and shrubs, mites that feed on spruce trees, rhododendrons, and other broad leafed plants can be infested by the spruce spider mite and the southern red mites when the daily high temperature is below 85°F. Spider mites are small 8 legged creatures that are more closely related to common house spiders than insects.

Use of some insecticides, like carbaryl and neonicotinoids, in mid-summer to protect plants against bagworms, and lacebugs can kill the predators that keep these cool season mites under control.

Inspect your plants for spider mites. Look for plants that begin to fade in color and appear as if covered in dust or appear bronze or covered in webs.



Arborvitae leaves attacked by spruce spider mite appear yellow.



Spruce spider mite and fine webbing visible under a lens (Photo by S. Mayer, Purdue).



Professionals or garden enthusiasts could tap a dry branch over a white sheet of paper to look for mites. You will probably need a magnifying lens to see the mites.

How to control spider mites

If you just have one or two affected plants or small parts of a plant affected, consider pruning or removing the infested part and spraying the remaining plant parts with a strong shower of water from your garden hose. This will knock off some mites, and if you do it repeatedly over a week or two, it could encourage the growth of a fungus that kills spider mites.

Apply a solution of 2% insecticidal soap, horticultural oil, or neem oil to kill spider mites if hosing down your leaves is not an option for your plants. Do not use oil or soap on blue spruce, as this will turn leaves green.

If your plant is dripping with mites and webs and all else has failed, you can use a miticide. Homeowner products with the active ingredient bifenthrin can kill spider mites and hold them back for as long as a month before the spider mite population comes back. Professionals have a wider choice of products to choose from. For more information on specifics see our bulletin on [managing spider mites in the urban landscape](#).

Gypsy moth: What to do NOW

(Elizabeth Barnes, barne175@purdue.edu)



Gypsy moth egg masses on the bark of a tree. Egg masses are pale brown and covered in hairs. Photo credit: Sandy Richard.

It's never too early to protect your trees from gypsy moth! Across the Central and Northeastern US gypsy moths had a population boom this summer. Although we do not have firm predictions for next year yet, you can still start planning and protecting your trees now!

Fall is the perfect time to check your property for gypsy moth eggs. Gypsy moths aren't picky about where they lay their eggs. Look for them on trees, houses, trailers, fence posts, and other surfaces near your home. Usually, a few egg masses won't severely damage your tree, but if you find more than 10 it's time to start thinking about treatment options. Here are the two main methods for managing eggs. First, you can manually remove them by gently scraping them with a knife or paint scraper. Throw the eggs in soapy water or in your freezer. Leave them for two or more days then dispose of them how you like. Second, you can chemically treat the eggs. Soak the eggs in a horticultural oil or insecticidal soap that is labeled for gypsy moths. If you use this method, be sure that the oil or soap won't damage the surface (e.g. house paint) under the eggs.

Both methods are effective at killing the eggs you can find and help to greatly reduce the gypsy moth population. However, it's very likely that you will miss some. Keep an eye on your trees in early spring and summer next year!

To find out more about the history of, current state of, and more management recommendations for gypsy moth, check out EABU's free webinar this Thursday, Sept. 27th at 11:00 AM EST. CCH credit is available for categories 2, 3A, and RT. Go to <http://www.emeraldashborer.info/eabu.php> to register!

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