Evergreen Diseases

What is the most common problem on evergreens?

Evergreens with yellow tips usually indicate too much moisture. So before blaming insects or disease, check the soil, the planting depth, and the amount of moisture your plant is getting.

What is normal fall browning?

White pine needles only live for 1-2 years before being shed, other pines may keep theirs for 3-5 years. Most evergreens keep their foliage for 1-3 years. Most of the shedding occurs on the inside areas of the branches in AUTUMN.

Arborvitae shed branchlets in autumn. Hemlocks, yews, spruces and firs shed needles over a long period of time. Rhodies retain leaves for 2 years, may shed in late summer and early spring. Hollies and mountain laurels retain leaves for one year. Hollies shed at the same time they are producing new foliage in the spring.

Transplant shock can cause sudden yellowing and needle drop but this may not occur for up to two years after transplantation. For yellowing and needle drop at unusual times of the year, look for drainage problems.

What is a leaf spot on an evergreen?

It is a localized area on a needle of a narrow leaved evergreen or a regular leaf of a broad leaved evergreen consisting of dead and collapsed cells.

What is a blight on an evergreen?

It is general and extremely rapid browning of leaves, branches, twigs or flowers resulting in their death.

What is a canker on an evergreen?

It is a localized wound or dead area, often sunken beneath the surface of the stem.

What is root rot on an evergreen?

Discolored roots on which the outer covering easily slips back when pushed like a sock down a leg.

What diseases are common on narrow leaf evergreens?
**Sphaeropsis (Diplodia) tip blight** common on Austrian pine shoots in the spring. Look for resin pushed out of newly expanded buds in small drops and pinpoint black dots under the tissue wrapping the base of the needles. Afflicted needles will be much shorter.

In canker form *Sphaeropsis* affects blue Atlas cedar suffering from salt and drought stress and manifests as tip blight on Japanese black pine, mugo, scotch, and Japanese red pine. Wet rainy weather in spring and early summer and wounds predispose plants to disease.

Remove dead branches, cones and debris. Prune off infected branches just below youngest live branch whorl. Prune in dry, fair weather. Do NOT plant new pines near infected trees. Mulch around the base of the tree to decrease compaction or digging damage. No overhead irrigation in spring.

Trees 15 to 25 years are most susceptible. Look for kinks in cankered twigs and brown needles adhering to twigs. *Diplodia* preferentially infects trees in dense shade and those in soils that are extremely wet, dry, shallow, sandy, or nutrient deficient plus those outside their natural geographic range.

**Cenangium canker.** The canker girdles twigs over the winter and in spring you will have browned needles and twigs below the canker line on Japanese red pines.

**Atropellis canker.** On Scotch pine you will see cankers that girdle and kill branches up to one inch in diameter. In mid May look for black cups emerging from bark cracks and a brown or blue-black stain surrounded by yellow, healthy tissue on the wood beneath the cankers. *Atropellis* canker also affects Austrian pine with white small, elliptical cankers at base of needles. Cankers can mimic *Diplodia* (*Sphaeropsis*) or frost damage. Crowded, moist conditions favor the disease.

**Juniper tip blight.** *Phomopsis* and *Kabatina* cause die back of young needles and shoot tips, girdle shoots, and produce black or gray dots. *Phomopsis* infections are still pale green in spring but turn brown by early summer; *Kabatina* infections are already brown by late winter. *Kabatina* is treated in the FALL; *Phomopsis* is treated in spring.

Avoid excess nitrogen and prolonged needle wetness from overhead irrigation. Plant your junipers in full sun or replace with *Cupressis arizonica*.

**Cytospora (Leucostoma)** cross infects spruces and firs, especially during hot, dry periods. The branches of spruce die from the bottom up. Lower branches of spruce drop huge numbers of purplish needles. Infection commonly occurs on old or stressed trees especially in sandy soil. No fungicides are very effective. Reduce stress and avoid lawnmower injury. Prune off branches touching the ground.

Look for light green to reddish brown color on needles on lowest branches in spring. Resin (whitish when it dries) exudes from cankers further back on the branch from the needle drop. Prune out infected branches beyond the canker and water and mulch well.
**Pine pitch canker** Resin soaked areas will girdle branches causing die back in autumn. In spring dead needles are still hanging on. Insects, high fertility, water stress and physical damage contribute to disease.

**Seridium canker.** Prolonged drying around roots increases disease. Italian, Leyland and Monterey cypresses are most susceptible, especially if planted in a berm. Foliage fades and dies most visibly in spring during rapid growth. Look for resin drops and streaks in killed bark. Cankers on young trees are usually on the main stem. Insects spread disease.

**Needle Cast Diseases of Narrow Leaf Evergreens**

Leaf spots of narrow leaf evergreens are called needle cast fungi. Casting, or needle loss, is common with diseases caused by excessive leaf wetness or stress.

**Low Light Needle Cast:** This is not a disease but rather a symptom of slow thinning often on evergreens or arborvitae, and especially noticeable in the CENTER of the plant early on. Look for this condition in plants in older or overgrown landscapes or if two plants are slowly merging, both start to shed needles at the point of the merge due to shading. A tree or shrub that gets steadily taller or broader can cause this as can sudden shading from a newly installed fence, deck, or building addition.

Sooty “Disease” on Needles: Not a true diseases but rather a symptom of piercing sucking insect infestation usually further up the evergreen or on an adjacent plant. The sooty “mold” grows on sweet stuff dribbled by the insects. It is unsightly, but largely harmless.

**Cyclaneusma needle cast.** Second year needles of Scotch, mugo and eastern white pine under stress yellow and cast in late fall. Reduce leaf wetness. The disease starts as spots that are light green then yellow which enlarge to yellow bands and whole needle yellowing. You’ll see transverse brown bars on Scotch pine only.

**Rhabdocline needle cast.** Douglas fir is the only important host. Branches turn brown in late summer, needles develop dark brown bands and spots then fall off in winter. Increase air circulation around the base of trees. Prune off lower affected branches by late April.

**Lophodermium needle cast** affects pines (plus excessively shaded firs, and spruces). Look for foot ball-shaped black fruiting bodies that cause the needle surface to bulge. It attacks the current season’s growth. In fall, infected needles have red spots with yellow margins.

In spring, needles turns red, then straw colored followed by black dots appear scattered up and down the needle length, but NOT in a straight line.

**Ploioderma needle cast** occurs in 2 or 3 needled pines. Black fruiting bodies are confined to straw colored lesions in the center of needles. Trees lose 1 year old needles. Disease is worst on lowest branches.

**Swiss needle cast (Phaeocryptopus).** Disease occurs mostly on Douglas fir and occasionally on true firs, hemlock and pine. Infected 1 year old needles are cast 2-3 years later. Needles turn yellow green, and then mottle with brown especially with rainy summer weather.
**Brown spot needle blight.** Austrian, Japanese black, mugo, pitch, spruce and eastern white pine are affected. Killed needles drop during October and November. Spots are straw to light brown with a dark border. Warm, wet weather favors disease.

**Dothistroma needle blight.** Austrian, Japanese black, and mugo pines, and rarely Douglas fir and larch if they are growing next to severely diseased pines are affected. Young trees outside their natural range get it worst. Translucent water soaked spots and bands which have centers that turn yellow to reddish brown appear on needles. Dying needle tips occur on foliage about six feet off the ground.

**Rhizosphaera needle cast** defoliates spruce, especially Colorado blue spruce, white spruce (Norway is fairly resistant), Austrian, Japanese black, mugo, and eastern white pine as well as Douglas fir. It spreads up or down creating “holes” in branches and is worst in trees less than 22 feet tall, starting first on low branches. Late summer yellow mottling of first year needles is common; needles eventually turn purple and brown. Browning is visible in winter, and needles drop next summer and fall. Disease is associated with low pH.

**Isthmiella (Lirula) needle cast** affects white spruce and fir. Dead needles remain attached until they have weathered several years. You’ll see branch segments with dead needles alternating with segments with no needles.

**Pestalotiopsis needle blight** causes tip blight, twig dieback, and stem cankers on trees of the cypress family and especially junipers and arborvitae damaged by freezing or exposed to unfavorable environmental conditions. You’ll see yellowing and browning progressing from tips towards bases of leaves. Shoot blight occurs when lesions form on bases of succulent new shoots. You’ll see black dots embedded in diseased tissue.

**Fir interior needle blight** manifests in early fall when older needles turn brown but remain attached. Black fruiting bodies appear in infected needles that drop by spring.

**Bifusella and Canavirgella Blight** cause the tips of white pine to die in early summer followed by brown or reddish brown needles in early fall. It resembles salt damage.

**Mycosphaerella** affects Virginia and Scotch pine in late August, with yellow spots appearing on the lower branches of the tree especially on the north side. Needle tips turn brown, but needle bases stay green longer before death.

**Meria blight** resembles frost damage on Larch! You can tell the difference because frost-nipped needles actually stay on the tree while blighted ones fall off. Look for white dots along lines on lower leaf surfaces during wet weather. Sanitation is key.

**Root Rots of Narrow Leaf Evergreens**

**Armillaria root rot** infects stressed trees and VIGOROUS trees. Disease affects all pines, spruces, firs, and Douglas firs. Initial symptoms are off-color foliage and stunted growth. Browning of needles and death usually follow within two months. Remove a bit of bark from the root collar area and look for a dense white mat of fungal tissue growing between bark and wood.
If you don’t see the mat, or dark “shoestrings”, it’s likely not *Armillaria*.

In autumn you may see clumps of honey-colored mushrooms at the base of the tree. Fungicides do not work well. Reduce stress, remove all old stumps and avoid planting susceptible trees near infected areas!

**Procerum root disease** is most common in eastern white pine but occurs in other pines, Douglas fir, white fir, and Colorado blue spruce. Hot weather causes sudden death and decline. The first symptom is delayed bud break and stunted twig elongation.

**Annosus root rot** is a major cause of death in eastern red cedar, producing shelf fungi at the root collar at or below the soil line. Broken, infected roots will be shredded and stringy. Bark beetles may be attracted to trees infected with the fungus. Slow growth and wind throw are common side effects. Evergreens growing on sandy soils are more susceptible.

**What diseases do Arborvitae get?**

**Cercospora needle blight** causes necrosis and discoloration of foliage on lower branches in summer. Deeper foliage is attacked first and disease progresses up trees until only outermost foliage is left green. Diseased shoots drop off in October and November. Water spreads the blight.

**Didymascella (Keithia) leaf blight.** Brownish spots form on the leaves followed by a large dark brown spot in the center by late June. Spots progress to cavities. Look for bleached areas on one-year-old foliage in spring. Severely diseased twigs often fall off in autumn. If they don’t, they bleach to a silvery gray with dark cavities. Snow cover may make disease worse. Younger trees are more susceptible as are lowest branches. Plants older than 4 years will not die. Diseased older plants can infect seedlings or young transplants.

**Diplodia (Sphaeropsis) blight** affects stressed AV in droughty sites, excessively pruned or fertilized trees or wounded plants. See previous disease description. Disease is worse if Austrian pines are nearby.

**Seridium canker.** Watch for AV needles dying back from the tip. Recently pruned or wounded trees are the most susceptible.

**Armillaria root rot, a.k.a. shoestring rot.** (See description previously listed)

**Normal Fall Browning**
Don’t mistake normal fall browning for a disease or insect problem. AV sheds its oldest branchlets in autumn and plants may appear to have very serious interior browning.

**Pestalotiopsis.** (See description previously listed in this section)

**Phomopsis blight** is common in AV near junipers. Look for tip blighting of new leaves only in late spring or summer. Little yellow spots signal infection. New shoots fade to light green, then turn reddish brown. A gray band may appear at the base of dead parts of the shoot. Killed shoots hang on the plant and weather to gray. Black dots develop in the gray band 3-4 weeks after
infection. Infection can occur any time during the growing season. Shearing, fertilization, and prolonged leaf wetness with warm temperatures encourage infection. Clip off infected shoots immediately and disinfect pruners.

Golden foliage varieties of *Thuja orientalis* are particularly affected.

**Botrytis** twig blight is associated with low light intensity, low temperature, excess fertilizer or fertilizer applied at the wrong time of year, aging or pollution or herbicide injury. Look for fuzzy gray mold in humid microclimates.

**How do I know if I have white pine decline?**

White pines do best in deep, well drained, fertile, acid soil, so check pH and drainage FIRST. Pines are EXTREMELY sensitive to salt in soil and air pollution: check location to see if near paths, parking areas that are regularly salted or near major roads. Look for the following:

- White pines often die between the ages of 7-25, often with a sudden collapse of the top part of the tree during stressful weather
- The tree may or may not have had a single limb die the previous year
- Yellowing, banded, brown tipped, off color needles
- Shoot and needle lengths shorter than usual
- Sparse tree canopy
- Sap exudate on branches
- Drooping needles IN WINTER
- Wrinkled bark on any area of the tree
- *Leptographium porcera* (a part of the decline in some cases) hits pines after they are 10 years old with sudden reduction in the length of new growth
- The following year, less growth, needles turn light green, a month or so later tree is dead
- White pine decline usually a combination of factors, especially in sites with heavy turf management
- Liming, mowing, disturbed or compacted soil (esp. heavy soil) and a pH of 7 or above contributes to decline
- Extremes of temp or moisture in urban areas or when trees are planted as windbreaks
- Construction which brings subsoil into contact with the roots contributes to decline
- Look for bark beetles or borer evidence like resin on the trunk, pinholes, tunneling patterns under bark or oval cavities filled with wood fibers just under the bark
- Pest WILL move onto healthy plants so get rid of sickly ones ASAP
- There are no good treatments for bark beetles and borers
- White pine weevils prefer trees 3-15 feet high, growing in the open on bad soil
- Drought is a major contributor to white pine decline
- Check roots of pines you suspect are in decline
- If a cross section of the root is brown and the outer layer slips off like a glove, you have root injury: if roots are white and healthy, the problem is above ground
How do I know if I have Japanese Black Pine Decline?

Japanese black pine decline is caused by a combination of environmental factors plus pine wood nematode and turpentine beetles. Pine wood nematode is vectored by the Eastern Sawyer long horned beetle. It attacks the following pine trees, spreading the nematode with it: Aleppo, Austrian, Japanese black, jack, loblolly, lodgepole, long leaf, Monterey, mugo, pitch, ponderosa, re, Japanese red, sand, shortleaf, slash, Swiss stone, Va, eastern white, atlas cedar, deodar, balsam fir, eastern and european larch, blue and white spruce.

Nematode infested pines most commonly die in early summer to early autumn and without relationship to previous vigor---rapid decline, may see fading gray/green or yellow color, or slight yellowing---one to a few branches or on all at once. They die so quickly that brown needles stay on the tree.

In cedars some branches die while others stay green. The larch yellows, and looses its needles early

In very large trees you may see branches start to die in autumn, and then again in spring. In the event that the disease does not take a rapid course, older needles brown and die first. You may see resin soaked wood in the trunk or you may not. Cool, moist weather seems to prolong the time until death, perhaps by reducing stress to the tree. Trees dying of nematodes are also attacked by bark beetles and other secondary invaders, which increases the potential for infection by fungi carried by the beetles. Get rid of dead trees to get rid of potential for infestation of healthy trees by nematodes and beetles.

High temperatures, water stress, and attack by secondary pathogens favor increase of nematode populations and wilt development. Another fungus, cenangium canker, also contributes to Japanese black pine decline.

• Look for discoloration of foliage midsummer to late fall, or late winter to spring.
• Trees infected in fall don’t break bud the following spring
• Trees may show symptoms 4-8 weeks after infection
• Infected trees in landscapes should be removed AND destroyed by burning or burying to eliminate breeding sites
• Black turpentine beetles carry fungus with them and are attracted to stressed and dying trees
• Watch for pitch tubes on the lower part of trunk or stumps
• Always remove stumps

What diseases do hollies get?

It may often not be a disease. Cultural problems are often to blame such as: Planting in fall is NOT ideal. Plant hollies in spring to avoid winter desiccation.

Unhappy holly may have wet feet. If the site is wet, plant Ilex cassine, I. myrtifolia or I. rotunda. Or try deciduous winterberry holly, which thrives in swampy conditions. Plant a male plant nearby to produce berries (see separate section on holly culture for list of appropriate male-female combinations.)
Environmental Leaf Problems of Holly
Most leaf problems in hollies are environmental.

"Spine spot" is caused by holly leaf spines puncturing adjacent leaves. Tiny initial spots enlarge to become tan with a purple margin.

Sun-scald lesions are light tan to gray and up to an inch in diameter with a well-defined margin. Scald usually results when hot, direct sun dries tissue of succulent young leaves.

Purple blotching is a genetic problem and means nothing.

If you see small, brown, corky, raised areas on the underside of leaves, this is an indicator that hollies are in waterlogged soil or are being excessively irrigated.

Marginal scorching of holly leaves may be caused by high salt content either in the soil or on the leaves. Hollies dry, windy environments may scorch. In this case, you will usually see wilt first.

Holly Leaf Drop: Natural leaf drop occurs in the fall. Excessive leaf drop the following spring may indicate a severe drought or serious over watering the previous season. With a cold, windy winter, the holly may drop lots of leaves during winter then refuse to renew its leaves the following season. Choose a hardier cultivar.

True Holly Diseases
Tar spot: Initial yellow spots on the leaves in early summer progress to a reddish brown, then turn black in autumn. The disease is most severe during prolonged wet periods along shore areas. Don't crowd your plants and prune to improve air circulation. Remove fallen, diseased leaves. Avoid copper based fungicides.

Canker. Hollies often get cankers or twig die back caused by Botryosphaeria, Nectria and Phomopsis which enter through wounds on the bark so keep the weed whackers away. Prune out cankered branches.

Botrytis. an outbreak at blossom time can impact berry production. If there is a prolonged wet period, you may see gray mold as a blossom blight, which can spread to adjacent leaves and twigs and result in significant die back. Dry weather stops disease progress.

Sooty mold. If you see black, sticky mold covering holly leaves it is from INSECTS, namely aphids or scale.

What are some common disease problems of rhododendrons and azaleas?

Root and Stem Problems of Rhododendrons and Azaleas
Look for wilted, downward rolled leaves, which turn yellow but remain attached to plants. Look for brown discoloration of lower stems as well as the root system. Leaves will also roll and droop down due to cold weather or drought BUT they will return to their normal shape when temperatures or moisture increase.
All root rots are exacerbated by poor drainage. Cull the plant, and DO NOT REUSE the same planting hole. Stem diseases usually only affect a specific part of the plant, in contrast to root rots which affect entire plants.

*Phytophthora* causes rolled leaves on *Rhododendron*. Leaves also die back near the leaf stem and purplish foliage is common. Look for firm, red/brown dry rot or brown streaks beneath the bark near the base. You’ll see rot in heavy soil with NON-ACID pH, particularly in areas of high moisture.

Dull foliage, yellowing, and wilting may happen quickly or over a period of several months.

Symptoms are often on one side of the plant only. Prune it out. Look for brown, mushy, rotted roots: does the outer layer of the root slip back easily? Constantly saturated root tips increase susceptibility so don’t plant shrubs under downspouts! Increase drainage and check for proper planting depth or too much mulch (over three inches). Increase soil acidity. Amend soil with shredded bark.

*Botryosphaeria* can cause girdling, sunken cankers on stems so the infected portion wilts. Center parts of infected twigs may be dark brown surrounded by lighter wood. Look for black dots on affected bark. If pruning cuts or wounds near the soil line are invaded, then large parts of the shrub may die. Prune back to at least 4 inches below a *Botryosphaeria* canker. Sterilize your pruning shears.

Azaleas with brown buds may have root damage causing the buds to dry out and eventually drop off.

**Leaf and Flower Diseases of Rhododendrons and Azaleas**

**Leaf spots** are not always disease. Some *Rhododendrons* suffer from physiological leaf spot which is caused by cultural or environmental stress. The spots are usually dark purple and do not have concentric rings or halos or tan spots in the center.

Fungal leaf spots normally have a "bullseye" appearance or have several colors associated with the spot, such as a reddish outer ring with a silvery center. With fungal infection, the entire tip or most of one side will become brown and brittle and you may see tiny, black, pepper-sized dots in this area.

**Bud blight.** Flower buds turn brown and fall off prematurely in spring. Black bristles may appear. Remove infected buds, disinfect between prunings, and destroy infected parts. If buds turn brown but do not fall off, or flowers only partially open, suspect cold injury in late fall through early spring. Slice them open and look for brown inside to confirm. Death of newly emerged growth followed by distortion of leaves just below is likely a result of late spring frost.

**Petal Blight** occurs in May on mountain laurel, azalea and Rhododendron flowers (not foliage), especially in muggy, misty, rainy weather. Symptoms are brown spots, and an eventual collapse of flowers. If you get petal blight every year, fungicide should be applied when the early evergreen azaleas are showing color, and then once a week for four weeks, especially if weather is rainy. Fungicide should cover flowers and buds that are showing color.
Azalea leaf (*Exobasidium*) gall. Leaves swell into a bladder shape; pick off and destroy them. Don’t plant your azaleas in heavy shade and increase air circulation. Avoid wetting foliage when watering in spring. Most severe problems occur with overhead irrigation during leaf expansion and high humidity in spring.

Powdery mildew is most prevalent shade or in areas of poor air circulation. Leaves are off color, coated with gray or white and there may be pepper dots on leaf undersides later in the season. Leaves may have diffuse yellow spots on the surface and brown or tannish discolorations on lower surfaces. Look for purple discoloration along the leaf veins, or purple ring spots. Rake up and discard fallen leaves.

*Septoria leafspot* can cause buds not to open and color of buds to change from deep to pale.

**What are the most common problems associated with boxwood?**

Foliar *Volutella* blight in boxwoods results from drainage issues plus tight growth patterns of popular cultivars.

Root rot is often caused by *Phytophthora*. Avoid over irrigation. Prune back dead stems to healthy tissue and remove dead material that has fallen into plant centers and underneath. Mulch beneath plants.

Protect boxwood from winter damage to reduce susceptibility to *Volutella*. Plant boxwoods in raised beds in heavy soil to avoid *Phytophthora*. Do not over water and incorporate organic matter into soil around roots to improve drainage.