Leyland Cypress Diseases, Insects & Related Pests

Leyland cypress (x *Cupressocyparis leylandii*) has grown in popularity in the Southeast over the last few decades, especially in its use as a fast-growing, screening plant. With the increased planting that has resulted from its popularity, various diseases and pest problems have become more evident.

As with any plant, the first step to a healthy Leyland cypress is to provide it with the cultural conditions that it needs. Ultimately, a vigorously growing plant is always better able to survive disease and insect problems than is a stressed one. In general, Leyland cypress requires full sun, and prefers moderately fertile soil that is moist and well drained. For further details on providing a Leyland cypress with the conditions under which it grows best, see HGIC 1013, Leyland Cypress.

Diseases

**Seiridium Canker/Dieback:** In the Southeast, this disease is caused most often by the fungus *Seiridium unicorne*. Generally speaking, cankers are dark, oval or elongated lesions that are usually dry, may be sunken with a raised edge, and are surrounded by living tissue. More specifically, Seiridium cankers form on stems, branches and in branch axils. They are often thinly elongated, shallow, and the surrounding bark shows a dark brown to purplish discoloration. A single Seiridium canker does not enlarge to girdle a branch. Instead, multiple cankers form around a branch, reducing water flow significantly. In addition, the cankers are often accompanied by an extensive flow of resin from cracks in the bark. However, resin flow by itself is not a defining characteristic of this disease as it often occurs in otherwise healthy Leyland cypresses. A shallow cut at the site of the canker typically reveals tissue beneath the bark that is reddish to brown in color and sticky. Branches affected by Seiridium canker experience dieback. They are often yellow to grayish tan to reddish brown in color and usually appear randomly distributed on the tree. When a cankered branch has only recently shown a change in color, needles will fall off easily when a hand is run along the branch. Generally, the discolored branches are the symptom noticed first. If the fungus gets into the main trunk, it can kill the entire tree.

Environmental conditions that stress Leyland cypress (especially drought, but also spring freeze damage) favor the development of infection. The fungus survives winter in infected tissue. Spore-producing structures of the fungus appear on the surface of the canker as small, black dots that are barely visible without a magnifying lens. Spores can be spread (within the tree and to new trees) via rain, overhead irrigation and pruning tools, typically entering the trees through wounds and cracks in the bark. From the point of infection until development of cankers and other symptoms often takes years.
**Prevention & Treatment:** When planting as a screen, provide enough space (a minimum of 12 to 15 feet) between trees for good air circulation and to minimize stress as they mature and enlarge. Avoid over-fertilization. Place mulch under trees to at least the drip line (and preferably further) to reduce water evaporation and competition for water as well as potential damage to trees from lawn mowers and string trimmers.

Drought-stricken trees are significantly more susceptible to infection. However, field trials have shown that trees inoculated with *Seiridium unicorne* that developed cankers were able to heal within 1-2 years once a regular irrigation schedule was implemented. As such, make sure Leyland cypresses are irrigated during drought or semi-drought conditions. Apply water at the base of trees to keep branches dry and reduce disease spread. If overhead irrigation is necessary, it should be applied very early in the morning.

Prune out and destroy diseased branches as soon as possible. Make pruning cuts 3 to 4 inches below diseased tissue. Sterilize pruning tools between each cut by dipping in a 10 percent bleach solution (1 part chlorine bleach to 9 parts water)*. Severely affected trees should be removed and destroyed.

*Note: Be sure to clean and oil pruning tools after this procedure to prevent rust formation.

Fungicides are not considered an effective or practical means for controlling canker diseases in general or *Seiridium* canker in particular.

**Phytophthora Root Rot:** Leyland cypress is susceptible to the root-rotting fungus *Phytophthora*. Root rot is primarily a problem in soils with very poor drainage. Young plants are most often affected. Mature, established trees are seldom affected. *Phytophthora* species that cause root rot live in the soil and enter a healthy tree through wounds or the succulent parts of small roots. As the fungus destroys the roots, symptoms of distress become apparent above ground. Foliage becomes stunted, sparse, changes color (yellow, purple, tan) and dies. Cankers may be visible at or below the soil line.

**Prevention & Treatment:** Remove and destroy infected plants including the entire root system. There is no practical chemical control for home gardeners. Improve soil drainage by adding organic material to heavy, clay soils and avoid overwatering. If replanting, do not plant a Leyland cypress or other susceptible species where *Phytophthora* is known to be present.

**Botryosphaeria Dieback/Canker:** This disease is caused by the fungus *Botryosphaeria dothidea*. As with *Seiridium* canker, symptoms include dieback with branches turning yellow to brown in color – typically the first symptom noticed. However, unlike *Seiridium* canker, needles generally do not fall off when running a hand down a recently affected branch. Examination of dead stems often reveals more deeply sunken (often V-shaped) cankers than found with *Seiridium* canker. In addition, these cankers often girdle a stem, killing the stem beyond the canker quickly. There may be cracks on the surface of a canker, and surrounding bark may be darker than that seen on a healthy branch. Botryosphaeria canker may exhibit little or no oozing resin. Cutting into an affected branch reveals dark brown discoloration with a definite margin between diseased and healthy tissue.

The fungal pathogen (disease-causing agent) overwinters in bark and diseased tissue. Spore-producing structures of the fungus appear on the surface of the canker as small, raised, black dots that are best seen with a magnifying lens. Spores are...
spread by water from rain and overhead irrigation as well as pruning tools.

**Prevention & Treatment:** As with Seiridium canker/dieback, environmental and cultural stresses predispose Leyland cypress to Botryosphaeria canker/dieback. Follow *Prevention & Treatment* recommendations provided above for Seiridium canker.

**Passalora Needle Blight:** Although often referred to as Cercospora or Cercosporidium needle blight, this disease is caused by the fungus *Passalora sequoiae* (previously known as *Cercosporidium sequoiae*, *Asperisporium sequoiae* and *Cercospora sequoiae*).

![Brown needles seen in Passalora needle blight.](image)

In cases of severe disease, all needles (except current year’s growth) turn brown, resulting in green needles being present only on branch tips. Spores develop during late spring to summer. They are spread primarily by rain, overhead irrigation, and wind, but also by tools.

![Spore forming structures of Passalora sequoiae are visible on infected needles.](image)

Passalora needle blight symptoms somewhat resemble symptoms seen in a Leyland cypress that is responding to severe environmental stress, such as drought, in which its lower, interior needles turn yellow and drop.
**Prevention & Treatment:** When planting, space trees to allow adequate air flow. To minimize spread of spores, avoid overhead irrigation or restrict it to early morning hours. Preferably, use drip irrigation and make sure that enough water is being applied during drought situations. Drip irrigation hoses should be no more than 75 feet long as pressure drops significantly after that point. Prune out diseased limbs, disinfecting pruning tools between cuts using 10 percent bleach solution (1 part chlorine bleach to 9 parts water). **Note:** Be sure to clean and oil pruning tools after this procedure to prevent rust formation.

Fungicides such as thiophanate-methyl and myclobutanil (see Table 1 for examples of products) are recommended for use against needle blight. However, to be effective, these sprays need to begin in late spring and continue through summer until the cooler, less humid months of fall. In addition, when applying these materials, it is essential that needles, including those on the inside near the trunk, are thoroughly sprayed to run-off. Once a tree is tall, adequate coverage by a homeowner is generally not feasible.

**Insects & Related Pests**

**Bagworms:** Bagworms (*Thyridopteryx ephemeraeformis*) infest many shrubs and trees, but conifers (evergreens) are the preferred hosts. Damage to plants results from feeding by the caterpillars, which causes loss of needles. Mild infestations of this pest slow the growth of Leyland cypress. Heavy infestations can kill a plant.

The adult male bagworm is a dark-colored, hairy moth with a 1-inch wingspan and clear wings. The adult female does not have wings or legs, is yellow, and appears almost maggot-like. The larvae (immature forms, aka caterpillars) range in size from about 1/8 inch to 2 inches depending on maturity. Each larva produces a carrot- or cone-shaped bag that it carries as it feeds. The bag is formed from silk that the larva produces. As it feeds, the larva adds bits of plant material to the bag for camouflage. The bag is about 2 inches long when complete. Home gardeners sometimes mistakenly identify it as a pine cone.

In South Carolina, bagworms survive the winter as eggs in a bag. The larvae hatch during May. Each one produces a strand of silk that allows it to be blown by the wind to a new location on the same plant or to a new plant. They soon begin to spin their cases. When mature, each larva pupates (transforms to an adult) within its bag. An adult male moth emerges from its bag in late summer (August/September). It locates an adult female in her bag. After mating, the female lays 500-1,000 eggs in her bag and dies.

**Prevention & Control:** Several parasites and predators feed on bagworms, generally keeping their numbers under control so that damage is not noticed. Removal of the egg-containing bags during winter and early spring is a very effective method for preventing problems before the next growing season. Once removed, the bags should be destroyed or placed in a deep container (5-gallon bucket), which allows beneficial parasites that may also be present in the bags to escape while retaining the bagworm larvae.

If an infestation is severe or the bags are out of reach, spray with the bacterial insecticide, *B.t.* This insecticide contains spores of the bacterium, *Bacillus thuringiensis*, which when eaten, kill the caterpillar. Young larvae are much more susceptible to *B.t.* than are older larvae. As such, apply this pesticide in the spring as soon as bagworms are seen (usually in May) and repeat two weeks later. Control is most effective when spraying is done in late afternoon or early evening. This insecticide is very safe to use. Once the bags have reached ¾ inch long, the efficacy of *B.t.* sprays decreases rapidly.

Bagworms (*Thyridopteryx ephemeraeformis*) are often mistakenly identified as cones.

James B. Hanson, USDA Forest Service, [www.insectimages.org](http://www.insectimages.org)
Sprays applied later in the season (May and June), when bagworms are larger must be with a contact insecticide, such as permethrin, cyfluthrin, lambda cyhalothrin, carbaryl, malathion or acephate. Note that these insecticides will also reduce populations of beneficial insects (predators and parasitoids) that help control spruce spider mites, which can result in an outbreak of this occasional Leyland cypress pest. Soil application of neonicotinoid insecticides, such as imidacloprid or dinotefuran only give minimal (less than 10%) control from bagworm damage, and should not be substituted for spray control. See Table 2 for examples of products. As with any pesticide, read and follow all label directions and precautions before using. Again, once a tree is tall, adequate coverage by a homeowner is often not feasible.

**Prevention & Control:** Naturally occurring enemies of mites include various predator mites, lady beetles (ladybugs) and other insects. These predators will usually suppress mite populations. Since insecticide use kills beneficial predators as well as mites, insecticides should be avoided unless absolutely necessary. Overuse of insecticides can result in population explosions of mites by their natural predators. However, insecticidal soap and horticultural oil sprays are less harmful to beneficial insects. Mites can be removed with a strong spray of water, when applied on a regular basis as needed.

To determine whether miticide use is needed, it helps to know how many mites are present. Hold a white sheet of paper under a branch and tap the branch with a pen. The mites that are knocked off will be seen crawling around on the paper. If dozens of mites are seen per tap, serious damage can result. Continue to check population numbers at 7- to 10-day intervals. Populations will be greatest during the spring and fall.

Pesticides labeled for homeowner use against spruce spider mites include insecticidal soap, horticultural oil, neem oil, tau-fluvalinate, lambda-cyhalothrin, and malathion. See Table 2 for examples of products that contain these active ingredients. As with any pesticide, read and follow all label directions and precautions before using. Again, once a tree is tall, adequate coverage by a homeowner is often not feasible.

**Spruce Spider Mites:** Mites are not insects but are more closely related to spiders. Spruce spider mites (*Oligonychus ununguis*) are occasional pests of Leyland cypress. They are very small and not seen easily with the naked eye. They have piercing mouthparts that they use to suck plant sap. Their feeding results in speckling (formation of tiny yellow spots) on needles. Some needles may turn brown and drop off. With heavy infestations, fine webbing may be seen on the plant. Several seasons of heavy mite feeding may kill a Leyland cypress. Although most spider mites increase in number during hot, dry weather, spruce spider mites are cool-weather mites. Their population peaks during spring and fall, but drops dramatically during the heat of summer when predators feed upon them.

**Scales:** Various scale insects, including juniper scale (*Carulaspis juniperi*), Maskell scale (*Lepidosaphes pallida*) and minute cypress scale (*C. minima*) feed on Leyland cypress trees.

Scales are unusual insects in appearance, and as a result are sometimes misidentified by gardeners either as parts of the plant itself or as disease organisms rather than insects. Adult female scales are small and immobile, with no visible legs. They secrete a waxy coat that varies significantly in shape and color depending upon the species. Adult males tend to be very small and have wings which allow them to fly so they can locate females. Immature scale insects are called crawlers, and as the name indicates, they have legs and are mobile.
An adult female juniper scale (Carulaspis juniperi) resembles a tiny (1/16-1/20 inch in diameter) fried egg, as seen here on a juniper needle. Males have a more elongated shape. United States National Collection of Scale Insects Photographs Archive, USDA Agricultural Research Service, Bugwood.org

Adult females survive the winter on the plant. In spring, they lay eggs under their shells. The crawlers hatch and crawl around before settling to feed. They feed by piercing a leaf, stem or branch with their mouthparts and sucking sap. Their feeding can weaken or kill branches.

Table 1. Fungicides to Control Leyland Cypress Diseases.

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<tr>
<th>Fungicides</th>
<th>Examples of Brand Names &amp; Products</th>
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<tr>
<td>Myclobutanil</td>
<td>Spectracide Immunox Multi-purpose Fungicide Concentrate</td>
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<td></td>
<td>Ferti-lome F-Stop Lawn &amp; Garden Fungicide</td>
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<tr>
<td>Thiophanate-methyl</td>
<td>Cleary’s 3336-WP Turf &amp; Ornamental Fungicide</td>
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<td>Southern Ag Thiomyl Systemic Fungicide</td>
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Note: Chemical control of diseases on large trees is usually not feasible since adequate coverage of the foliage with a pesticide cannot be achieved.

Symptoms of a scale infestation of Leyland cypress are very similar to those of spruce spider mite infestation. Initially, the Leyland cypress appears off-color, and infested branches show little growth. The needles eventually turn yellow or brown. Branches may die back. If ignored, a scale infestation may kill the plant within two to three growing seasons.

**Prevention & Control:** Depending on the size of the tree and how extensive the infestation is, sometimes scale can be removed by scraping them off the plant. If the scale infestation is somewhat localized, removal of infested branches can reduce the population significantly. Various beneficial insects help keep scale insects under control. If insecticides become necessary, try to use those that are “beneficial insect friendly”. These include insecticidal soap and horticultural oils.

The presence of adults or crawlers determines which treatment will be most effective. The waxy coating on adult scales protects them from traditional insecticides, but their crawlers are susceptible. Use a horticultural oil spray in late winter or very early spring before new growth occurs to control adult females by suffocation. Insecticides recommended for use against crawlers include horticultural oil, insecticidal soap, permethrin, cyfluthrin, lambda-cyhalothrin, carbaryl, malathion and acephate. See Table 2 for examples of products. Read and follow all label directions and precautions before using.
Table 2. Insecticides to Control Leyland Cypress Insects & Related Pests.

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<thead>
<tr>
<th>Insecticides</th>
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<tr>
<td>Acephate</td>
<td>Bonide Systemic Insect Control Concentrate</td>
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| *Bacillus thuringiensis* (*B.t.*) | American Brand Thuricide Concentrate  
|                      | Bonide Thuricide *Bt* Concentrate  
|                      | Hi-Yield Thuricide Concentrate  
|                      | Monterey *Bt* Concentrate  
|                      | Safer Brand Caterpillar Killer Concentrate  
|                      | Southern Ag Thuricide *Bt* Caterpillar Control Concentrate  
|                      | Tiger Brand Worm Killer Concentrate  |
| Carbaryl             | Garden Tech Sevin Bug Killer Concentrate  |
| Cyfluthrin           | Bayer Advanced Vegetable & Garden Insect Spray Concentrate  |
| Horticultural Oil    | Bonide All Seasons Spray Oil Concentrate  
|                      | Ferti-lome Horticultural Oil Spray Concentrate  
|                      | Monterey Horticultural Oil Concentrate  
|                      | Southern Ag Parafine Horticultural Oil  |
| Insecticidal Soap    | Bonide Insecticidal Soap Concentrate  
|                      | Espoma Earth-tone Insecticidal Soap Concentrate  
|                      | Natural Guard Insecticidal Soap Concentrate  
|                      | Safer Insect Killing Soap Concentrate  
|                      | Schultz Garden Safe Insecticidal Soap Concentrate  |
| Lambda-Cyhalothrin   | Bonide Caterpillar Killer RTS¹  
|                      | Bonide Beetle killer RTS¹  
|                      | Martin’s Cyonara Lawn & Garden Concentrate; & RTS¹  
|                      | Spectracide Triazicide Insect Killer for Lawns & Landscapes Concentrate; & RTS¹  |
| Malathion            | Bonide Malathion 50% Insect Control Concentrate  
|                      | Gordon’s Malathion 50% Spray Concentrate  
|                      | Hi-Yield 55% Malathion Insect Spray Concentrate  
|                      | Martin’s Malathion 57% Concentrate  
|                      | Ortho MAX Malathion Insect Spray Concentrate  
|                      | Southern Ag Malathion 50% EC  
|                      | Spectracide Malathion Insect Spray Concentrate  
|                      | Tiger Brand 50% Malathion Concentrate  |
| Neem Oil             | Bonide Neem Oil Concentrate  
|                      | Ferti-lome Rose, Flower & Vegetable Spray Concentrate  
|                      | Garden Safe Fungicide 3 Concentrate  
|                      | Garden Safe Neem Oil Extract Concentrate  
|                      | Natural Guard Neem Concentrate  
|                      | Southern Ag Triple Action Neem Oil Concentrate  |
| Permethrin           | Bonide Eight Insect Control Vegetable Fruit & Flower Concentrate  
|                      | Bonide Eight Yard & Garden Ready to Spray (RTS¹)  
|                      | Bonide Total Pest Control – Outdoor Concentrate  
|                      | Hi-Yield Indoor/Outdoor Broad Use Insecticide Concentrate  
|                      | Martin’s Vegetables Plus Concentrate  
|                      | Tiger Brand Super 10 Concentrate  |
| Tau-Fluvalinate (miticide) | Bayer Advanced 3-in-1 Insect, Disease & Mite Control Concentrate; & RTS¹  |

Note: Chemical control of diseases and insects on large trees is usually not feasible since adequate coverage of the foliage with a pesticide cannot be achieved.

¹RTS = Ready to spray (a hose-end spray bottle).
Caution: Pollinating insects, such as honey bees and bumblebees, can be adversely affected by the use of pesticides. Avoid the use of spray pesticides (both insecticides and fungicides), as well as soil-applied, systemic insecticides unless absolutely necessary. If spraying is required, always spray late in the evening to reduce the direct impact on pollinating insects. Always try less toxic alternative sprays first for the control of insect pests and diseases. For example, sprays with insecticidal soap, horticultural oil, neem oil extract, spinosad, Bacillus thuringiensis (B.t.), or botanical oils can help control many small insect pests and mites that affect garden and landscape plants. Neem oil extract or botanical oil sprays may also reduce plant damage by repelling many insect pests. Practice cultural techniques to prevent or reduce the incidence of plant diseases, including pre-plant soil improvement, proper plant spacing, crop rotation, applying mulch, applying lime and fertilizer based on soil test results, and avoiding over-head irrigation and frequent watering of established plants. Additionally, there are less toxic spray fungicides that contain sulfur or copper soap, and biological control sprays for plant diseases that contain Bacillus subtilis. However, it is very important to always read and follow the label directions on each product. For more information, contact the Clemson Extension Home & Garden Information Center.