

Beware of Boxwood Blight!

Cassie Bouska and Jay W. Pscheidt



Photo by Karl Puls, Oregon Department of Agriculture, 2012. Used by permission.

Figure 1. Defoliation of boxwood caused by boxwood blight in a home landscape.



Photo by Karl Puls, Oregon Department of Agriculture, 2012. Used by permission.

Figure 2. Dark lesions and defoliation on infected boxwood stem compared with healthy specimen.

Boxwood blight is caused by a fungus, *Calonectria pseudonaviculata*, that can infect members of the boxwood family (Buxaceae) including *Buxus* spp. and their cultivars, and *Pachysandra* and *Sarcococca*. The disease has devastated boxwood for many years in Europe and New Zealand, but it is new to North America, including Oregon. The fungus was found for the first time in late 2011 in three Oregon nurseries, and was detected in a home garden in Coos Bay and in a few landscapes in the Portland area for the first time in fall 2014. Eradication efforts are ongoing.

The presence of boxwood blight in western Oregon presents a new challenge to homeowners, commercial landscapers, professional gardeners, and nursery owners alike, because boxwood is a popular component of landscaping. We are unsure what the ultimate impact of this disease will be for landscapes in Oregon. If boxwood blight's severity and destructive impact in Europe and New Zealand are any indication, we can expect it to become a much bigger problem in Oregon.

Cassie Bouska, Extension agriculture faculty, Coos and Curry counties, and assistant professor (practice); and Jay W. Pscheidt, Extension plant pathology specialist and professor; both of Oregon State University



Figure 3. Defoliation caused by boxwood blight in a home landscape.

What does it look like?

- Defoliation: leaves drop off, often soon after leaf symptoms develop. This might start with one or a few plants, but it can spread rapidly to others (Figures 1 and 2, page 1; and Figure 3).
- Dark or light brown leaf spots, often in a circular or zonate pattern (Figure 4)
- Straw- to bronze-colored foliage (Figures 4 and 5)
- Dark brown or black lesions on stems, either linear or diamond-shaped. These typically progress from the bottom of the stem upward (Figure 2, page 1).
- Downy white fungal growth MAY be seen on the underside of leaves.

How do you look for it?

Defoliation is the most obvious symptom. Look for fallen leaves (or defoliated areas) at the base of the plant. Inspect the lower and interior canopy for leaf spots and stem lesions by parting the canopy and examining the interior leaves and stems. If the disease has progressed, you may be able to see it on the outer parts of the plant. Symptoms are best found in fall through mid-spring; it is difficult to detect symptoms in late spring through summer. The disease doesn't appear to infect the roots, only the aboveground portions of the plants.

How does it spread?

The disease spreads over a long distance by people moving infected nursery stock or infected plant debris from one place to another. The boxwood blight
Beware of Boxwood Blight!



Figure 4. Lesions of various shapes on boxwood leaves.



Figure 5. Whole leaves and stems can become blighted.

fungus' sticky spores are easily moved around by animals, people (spores can stick to your clothes or shoes), or splashing water. The fungus can also spread from plant to plant or from yard to yard via contaminated pruning equipment and infected plant debris.

Western Oregon's coastal climate is the perfect environment for boxwood blight. Warm, wet conditions favor the spread of spores and infection of healthy plants. Studies have shown that infection can happen very quickly at temperatures between 64°F and 77°F, but young leaves can be infected at temperatures at least as low as 54°F. Because it rains often in the mild climate along the coast, there are many opportunities for splashing water to spread infection. In the Willamette Valley, plants can be infected during new shoot growth in the spring and for a short time in the autumn when the fall rains return. After infection, new leaf spots or stem lesions with a new crop of spores can occur in as little as a week.

The fungus can survive on fallen leaves for up to 5 years and then produce its sticky spores when environmental conditions are favorable.

What to do about it?

Because of its explosive and rapid life cycle, the best practice for containing the disease is to remove and destroy infected plants. Composting is not recommended.

All infected plants and associated plant debris (including all the leaves on the soil surface) must be removed and destroyed. You can burn everything

on-site (but check local burn ordinances first!), or bag everything and take it to the nearest waste disposal site or landfill. Carefully bag and seal ALL the infected leaf debris. Remember, moving infected plant material is one of the main ways the disease is spread long-distance! If you take the infected plant material to a waste disposal site, DO NOT put it in the brush pile! It MUST go into the "other waste" section—that section is removed to a mined landfill at least weekly.

More ways to prevent the spread of boxwood blight

- Isolate new plants for at least a month to watch for symptoms of the disease.
- Use drip irrigation, or water plants at the root instead of wetting the foliage.
- Prune plants when conditions are dry.
- Sanitize pruning equipment between plants or sections of plants and ESPECIALLY between yards.
- Plant boxwood cultivars that are less susceptible to boxwood blight. Less-susceptible cultivars may harbor the fungus, but they develop much less severe symptoms. (See Table 1 for examples.)
- Consider planting other species that aren't infected by boxwood blight but could fulfill the same function in the landscape. Some examples are *Rhododendron migranatum* 'Bloombux', Japanese holly (*Ilex crenata*), or *Pieris japonica*.

Table 1. Boxwood cultivars sold in Oregon and their relative susceptibility to boxwood blight*

Commercial boxwood cultivar	Susceptibility to boxwood blight
<i>Buxus sempervirens</i> 'Suffruticosa' (dwarf boxwood, English boxwood)	Highly susceptible
<i>B. sinica</i> var. <i>insularis</i> 'Justin Brouwers'	Highly susceptible
<i>B.</i> 'Glencoe' (Chicagoland Green)	Susceptible
<i>B. sempervirens</i> 'Elegantissima'	Susceptible
<i>B. microphylla</i> 'Green Mountain'	Moderately susceptible
<i>B. microphylla</i> 'Winter Gem'	Moderately tolerant
<i>B. microphylla</i> 'Green Gem'	Moderately tolerant
<i>B. sempervirens</i> 'John Baldwin'	Moderately tolerant
<i>B. sempervirens</i> 'Fastigiata'	Moderately tolerant
<i>B. sempervirens</i> 'Dee Runk'	Moderately tolerant
<i>B. microphylla</i> 'Green Beauty'	Tolerant

*Compiled from research by Ganci, Benson, and Ivors, North Carolina State University, 2012; and data from the Oregon Association of Nurseries

Other diseases of boxwood

Boxwood blight isn't the only disease that infects boxwood. Boxwood plants are susceptible to a number of other diseases, some of which can look like boxwood blight. Volutella blight, *Macrophoma* leaf spot, and boxwood decline can all be confused with boxwood blight. Winter injury and sunscald can also look like the disease. Some plants may have a combination of ailments.

Contact your local OSU Extension Service office if you are concerned that you have a boxwood blight infection.

For more information

Pacific Northwest Plant Disease Management Handbook. 2016. Oregon State University Extension Service. <http://pnwhandbooks.org/plantdisease>

Douglas, S.M. 2011. *Boxwood blight—A new disease for Connecticut and the U.S.* Connecticut Agricultural Experiment Station Publication. http://www.ct.gov/caes/lib/caes/documents/publications/fact_sheets/plant_pathology_and_ecology/boxwood_blight-_a_new_disease_for_connecticut_and_the_u.s._07-20-12_r.pdf

Ganci, M., D.M. Benson, and K. Ivors. 2012. *Susceptibility of Commercial Boxwood Varieties to *Cylindrocladium buxicola**. North Carolina State University Extension. <https://plantpathology.ces.ncsu.edu/wp-content/uploads/2013/05/final-2012-cult-susc-summary.pdf?fwd=no>

© 2016 Oregon State University.

Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties. Oregon State University Extension Service offers educational programs, activities, and materials without discrimination on the basis of race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, familial/parental status, income derived from a public assistance program, political beliefs, genetic information, veteran's status, reprisal or retaliation for prior civil rights activity. (Not all prohibited bases apply to all programs.) Oregon State University Extension Service is an AA/EOE/Veterans/Disabled.

Published April 2016