Helpline Happenings – January 2024

BOXWOOD WINTER DAMAGE and Review of Other Boxwood Problems

By: Carolyn Wojciechowicz

Boxwood problems come into Helpline ALL year long! Given that it is January, officially winter, and the start of the new year, it is a good idea to take a romp through the myriad boxwood issues beginning with WINTER DAMAGE. **Winter damage is a common problem for boxwood in Mercer County and is sometimes the cause of secondary issues that gardeners will find in boxwood plants.** An oft used catch-all phrase to describe problems with boxwood is "boxwood decline." Without defining the exact problem(s), this terminology refers to winter damage and then the secondary problems that can ensue in a stressed plant. Among the common boxwood problems in the northeast are boxwood leaf miner infestation, boxwood blight, Volutella blight, Phytophthora root rot, boxwood psyllid infestation, boxwood mite infestation, vole damage, and boxwood leaf spot. And there is more as boxwoods less commonly can be affected by anthracnose, box tree moth, and nematodes!

Winter damage is characterized by "burn symptoms." These occur when water is lost from the leaves by winter winds and sunlight exposure and is not replaced because the roots and the soil around them are frozen and cannot take up water. Leaves turn from pale yellow to reddish bronze to brown rapidly and seemingly all at once either on the whole plant or on large swaths of branches. There can be telltale patterns to winter damage: If there is snow, foliage will be green below the snow line and brown above as the snow insulates the branches below it from wind and sun. And the SW and windward sides of the plant will be more affected than others due to sun and wind exposure, respectively. To remedy winter damage, simply prune away the dead tissue; the plant will slowly regrow.

If planted properly, in the right location, and thoughtfully maintained throughout the year, boxwood can be a slow growing, easy evergreen plant for the garden. **Things to remember for proper care are:**

- Plant to proper depth (not too deep) and provide enough space for good air circulation.
- Plant in a well-drained location.
- Mulch to retain soil moisture in summer and protect roots and soil from temperature fluctuations.
- Keep mulch, soil, and compost away from the base of the trunk.
- Provide good air flow – remove fallen leaves from branch crotches, prune dead/diseased branches.
- Prevent watering from overhead to keep leaves dry.
- Water sufficiently particularly in summer and going into winter to combat drought and desiccation
- Avoid late summer fertilization or pruning to prevent late season growth that is not hardy for winter.
- Prune in winter after the plant goes dormant.
- Prune dead/diseased branches at any time and meticulously remove dead/diseased fallen leaves from around plant.
- Place all detritus in the trash to avoid the spread of diseases and pests.
- Protect plants from desiccating winter winds.
- Practice weed control around plants.
- Prevent root and soil compaction from construction and lawn machinery.
- Keep tools clean with 70% alcohol when pruning.

These measures will help to prevent stress and winter damage to boxwood plants. These practices can also help to avoid the many boxwood ills that can be look-alikes to boxwood winter damage.

The most common problems found in Northeast boxwoods are summarized in the table below.

BOXWOOD PEST/DISEASE/CONDITION	SYMPTOMS
WINTER DAMAGE **Figure 1 and 2**	"Burn symptoms;" whole plant or wide swaths affected all at once; patterns to location of symptoms; dead leaves remain on plant
BOXWOOD LEAFMINER *Monarthropalus buxi* Gall midge Most destructive boxwood pest **Figure 3 and 4**	Blistered, yellow leaves obvious by late summer; leaf drop; stunted growth; larva mine in leaf; adult is mosquito-like red fly
VOLUTELLA *Pseudonectria buxi* Fungus **Figure 5**	Leaves turn yellow, tan, bronze before new growth in spring; damage progresses down stem; new growth starts late in spring and is less vigorous; dead leaves and stems remain on plant; pink spores on leaves and stems in wet/humid weather; black wood under peeled bark; usually affects stressed or weakened plants
BOXWOOD BLIGHT *Calonectria psuedonaviculata* Fungus Most serious boxwood disease **Figure 6, 7, 8, and 9**	Defoliation of whole plant; damage progresses from bottom to top; spots appear on leaves and enlarge in concentric circles; diamond shaped black stem lesions (cankers) appear on green stems; white fruiting bodies visible with a hand lens on leaf underside and stems; roots unaffected; spreads easily with splash, contact, tools, detritus; can kill entire plant
PHYTOPHTHORA ROOT ROT *Phytophthora sp.* Fungus **Figure 10 and 11**	Localized branch and leaf wilting, yellowing, and dieback; shriveled leaves remain on stems; dark staining under bark; black base of trunk; separation of bark at trunk; roots dark black, brittle, and sparse; progresses from top to bottom; persists in soil
BOXWOOD LEAF SPOT *Dothiorella candollei* Fungus **Figure 12**	Leaves turn straw colored; tiny black fruiting body spots appear on affected leaves
BOXWOOD SPIDERMITE *Eurytetranychus buxi* Mite insect **Figure 13 and 14**	Stippling of leaves; discarded eggshells and skins on leaf underside
BOXWOOD PSYLLID *Psylla buxi* Insect **Figure 15**	Cupping of new growth leaves in the spring; aesthetic problem only
VOLE Rodent **Figure 16**	Girdled base of trunk; tunnels through root system; roots eaten



Figure 1: Winter damage snow line
Photo: Bob Bricault, MSU Extension



Figure 2: Winter damage yellow and bronze
Photo: University of Maryland



Figure 3: Boxwood Leafminer larva, casings, holes, adult
Photo: Sabrina Tirpak, Rutgers University



Figure 4: Boxwood Leafminer blistered leaves
Photo: Richard Buckley, Rutgers University



Figure 5: Volutella spores on boxwood
Photo: Sabrina Tirpak, Rutgers University



Figure 6: Boxwood blight spots on leaves
Photo: Sabrina Tirpak, Rutgers University



Figure 7: Boxwood blight black stem lesions (canker)
Photo: M.A. Hansen



Figure 8: Boxwood blight progresses bottom to top
Photo: Chuan Hong, Virginia Tech



Figure 9: Boxwood blight defoliation of plant
Photo: Mary Allen Hansen, VPI, Bugwood.org



Figure 10: Phytophthora Root Rot
Photo: Neil Bell, Pacific Northwest Pest Management Handbooks



Figure 11: Phytophthora Root Rot staining under bark
Photo: CR Foss, Washington State University



Figure 12: Boxwood Leaf Spot and black fruiting bodies
Photo: Margery Daughtrey, Cornell University



Figure 13: Boxwood Spider mite leaf stippling
Photo: David L. Clement, University of Maryland



Figure 14: Boxwood Spider mite eggshells and casing
Photo: Sabrina Tirpak, Rutgers University



Figure 15: Boxwood Psyllid leaf cupping
Photo: Penn State University



Figure 16: Vole
Photo: University of Maryland

Pest and disease resistant boxwood varieties are available. Some diseases can only be confirmed through laboratory testing of the plant material. If controls are deemed necessary, select fungicides or insecticides carefully as they are very specific to diseases and pests. Apply controls at correct times of day and year to kill targets and protect beneficial insects. Remember, "the label is the law;" only use chemicals that are specifically labelled to treat the target problem.

In summary – to assist Helpline diagnostics of boxwood problems investigate these defining areas:

- Defoliation vs. dead leaves held on branches
- Dark stem staining
- Misshapen, discolored leaves
- Loosened bark at base of trunk
- Colored spores on leaves and stems
- Root damage

Resources:

- https://extension.umd.edu/resource/boxwood-identify-and-manage-common-problems/
- https://hgic.clemson.edu/factsheet/boxwood-diseases-insect-pests/
- https://ecommons.cornell.edu/server/api/core/bitstreams/bb43f220-ac04-4b70-95b9-797e9dca28ad/content
- https://plant-pest-advisory.rutgers.edu/boxwood-blight-confirmed-in-new-jersey/
- https://plant-pest-advisory.rutgers.edu/fly-boxwood-leafminer-fly/
- https://extension.illinois.edu/blogs/good-growing/2021-05-17-boxwood-blight-look-alikes
- https://hortsense.cahnrs.wsu.edu/fact-sheet/boxwood-phytophthora-root-rot/
- https://www.canr.msu.edu/news/winter_injury_or_boxwood_blight

Additional readings:

- https://irp-cdn.multiscreensite.com/5d757b5b/files/uploaded/HRIBoxwoodHealthBMPs-V3-2020.pdf (detailed information on boxwood blight)
- https://boxwoodsociety.org/abs_care.html#care