

Cytospora Canker of Spruce

Cytospora or Leucostoma canker is one of the most damaging diseases of Colorado blue spruce, *Picea pungens*, in the landscape. Other susceptible spruces include black, Engelmann, Norway, Oriental, red and white. This disease less frequently attacks western red cedar, Douglas and balsam fir, eastern hemlock, eastern, European, and Japanese larches, red pine, eastern white, and Himalayan white pines.

The disease is caused by the fungal pathogen *Leucostoma kunzei* (conidial stage *Leucocytospora kunzei*). This disease occurs most often on older established landscape trees stressed by drought or poor site conditions. Older branches are more susceptible than younger ones. The disease often proceeds up the tree destroying branches and the tree's ornamental symmetry. The most common symptoms on spruce include:

- lower branch die back with faded or brown needles
- profuse pitch or resin flow on dying branches
- general poor growth

Cutting into the diseased portion of the branch, or bark canker, where the pitch is oozing, will reveal reddish brown resin soaked wood. Small black spots are often seen in the bark near the edges of these resin soaked areas. These embedded black spots are the spore forming or fruiting structures called pycnidia. In wet weather spores ooze out of these structures and are washed to other branches where they can invade through wounds. Disease spores are also spread by wind and insects to other trees. If Cytospora canker has been a problem in the past consider selection of alternative trees for the landscape site.

Additional problems are also often visible on stressed and diseased trees. Secondary infestations of insects and mites are frequently found on declining trees. Dead and dying limbs are favorite breeding sites for several kinds of bark beetles that excavate galleries under the bark (see Home and Garden Mimeo HG 1). Trees under attack by bark beetles often fade from the top down. Needle color will gradually change to a reddish-



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brown. Several species of bark beetles may attack a declining tree. The initial signs of attack are pitch tubes and/or boring dust. The pitch tubes are small masses of pitch often mixed with boring dust and frass. Entry and exit holes from bark beetles are small and round. The bark can be easily removed revealing the sawdust filled galleries. Spruce spider mite, pine needle scale and spruce bud scale are also often present on declining spruces. Of these last three pests, usually only the spider mites cause severe damage (see Home and Garden Mimeo HG13).

Disease Management Strategies

Fungicide sprays are **not effective and are not recommended** because they will not cure trees showing decline symptoms. The only direct action for disease reduction is pruning out diseased limbs. Drought is the major factor predisposing spruces to Cytospora canker. Any management practice that reduces stress on trees will help them resist this disease. The following management practices are recommended:

- Mulch around trees to prevent wounding by lawn mowers and string trimmers.
- Wait for late winter or dry weather before pruning out dead and dying branches close to the trunk. Don't prune in wet weather because the fungus can easily infect pruning cuts. Destroy pruned out branches. In pruning, avoid wounding the main trunk; leave a short stub, less than an inch long.
- Irrigate trees during dry spells.
- Fertilize in the fall to promote growth and vigor.
- Check trees each summer for spruce spider mites and follow appropriate management practices. Also follow the appropriate management practices for bagworms (see Home and Garden Mimeo HG 32).
- Prompt removal of dead or dying trees will slow the spread of disease and eliminate breeding sites for bark beetles.

Alternative Plant Selections for Replacement of Diseased Spruces

- Serbian Spruce - *Picea omorika*. Considered by many to be the most graceful of the spruces. Noted for its excellent green foliage and its narrow, pyramidal growth with drooping branchlets. One of the most adaptable spruces; makes an excellent specimen planting.
- Blue Atlas Cedar - *Cedrus atlantica* 'Glauca'. A handsome, but very large, specimen tree. Commonly

reaches 40-60 feet in height with a 30-40 foot spread. When young, the form is stiff with an erect leader; with age, it becomes flat-topped and widespreading. A very picturesque and interesting blue foliage tree.

- Nikko Fir - *Abies homolepis*. A handsome pyramidal specimen tree noted for its soft, silvery green foliage and its tolerance to pollution and urban conditions. Can reach 80-90 feet in height. An excellent plant, but may be rather difficult to locate.
- Leyland Cypress - *X Cupressocyparis leylandii*. A fast growing evergreen with a fine, bright, bluish-green color all year and a feathery, graceful form. It may be pruned and used as a hedge or allowed to grow naturally. An excellent plant for specimen planting or as a screen. Start with small plants since they establish a stronger root system. Leyland Cypress transplanted as larger (over 4-ft. tall) plants are more apt to blow over in storms.
- Chinese and Rocky Mountain Juniper cultivars - *Juniperus chinensis* and *Juniperus scopulorum* - A number of cultivars are available with a wide variety of growth forms and colors. Tough and generally trouble-free plants.
- Japanese cedar - *Cryptomeria japonica*. A magnificent evergreen with attractive glossy green foliage and beautiful, peeling reddish-brown bark. These trees may brown in winter when planted in exposed sites, but they recover their color the next spring.

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