

## Diseases and Insects in trees at Old Main Street

I would like to share a bit more detail I learned about while reviewing the problems with respect to the dying trees on our property at 218 and our immediate neighbour's property at 226 Main Street North.

In my presentation at the January meeting I referred to the dead and dying Scot Pines which have invasive characteristics and provide a home for some insect pests which spread to valued native tree species. Everett in his presentation referred to large Oak tree with an unusual large amount of deadwood and 3 young oaks that are totally dead.

In the recommendations of the Tertiary Plan it says: *"...a disease in pines that affects scots and red pines but these diseases are restricted to conifers only and will not affect all of the Town's trees."* As well: *"The decline of the oak trees may be related to the decline of the pines but since they are two different species they are most likely declining for different reasons."*

Some of the articles I read agree that pine wilt disease is limited to coniferous trees. However, many other articles state that several deciduous trees are affected by the same beetles that cause pine wilt.

Pine wilt was mentioned as the reason for the death among Scot pines. Pine wilt is a lethal disease caused to trees by a wood borer insect—the pine sawyer beetle. The pine beetle is one species of the bark beetle.

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Bark beetles

[missouribotanicalgarden.org](http://missouribotanicalgarden.org)



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### Damage done by bark beetles in Scot Pines at 218 Main North

I also found that Bark beetles can be detrimental to deciduous trees. Bark Beetles often carry pathogenic fungi such as Dutch Elm disease and Oak Wilt, which are deposited in the vascular system of the tree.



Evidence of bark beetles in an Oak at the border of 218 Main and St John cemetery.



Online picture of bark beetle in an Oak tree

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Oak at 218 showing similar damage

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I learned that there is a relationship between pine beetle and blue stain fungi. According to the American Phytopathological Society "... blue-stain fungi to trees, and these fungi, along with other ... The nematode is the primary pathogen in this case, and the result is pine wilt." On another website I learned that Blue-stain fungi are well-known associates of scolytid bark beetle species colonizing both hardwoods and conifers.



Online picture of blue stain fungus



Blue stain on a dead tree at 218 Main North

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Blue stain is usually found on coniferous wood like Scots Pine. It can also be found on deciduous trees such as European Beech, Ash, Aspen, Cotton Wood Poplar and various Oaks.

On a Toronto website I learned that Oak Wilt has the potential to be a devastating disease in the greater Toronto area.

Below are pictures of Beetle damage on some of the 'other hardwood trees' at 218 Main Street North referred to in the Kuntz Tree report, April 2017.



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## References

### Bark beetles

<https://extension.umd.edu/hgic/topics/bark-beetles-trees-and-shrubs>

Bark beetles on deciduous trees

The beetles generally attack stressed or weakened trees (oak, elm, birch, ash, hickory, hackberry, beech, sweetgum, maple cherry, pear, etc.) The immature beetles construct galleries as they feed on the cambium, under the bark. Healthy trees can usually withstand bark beetle attacks by literally trapping the beetles in a sticky flow of pitch. Bark beetles emit a chemical signal, or aggregation pheromone, which attracts more bark beetles to the tree under attack. Beetles often carry pathogenic fungi such as Dutch elm disease and oak wilt, which are deposited in the vascular system of the tree. These fungi quickly multiply and clog the water conducting vessels of the tree which hastens its death.

### Pictures of blue stain fungus

[https://www.google.com/search?q=blue+stain+fungus&tbm=isch&tbs=rimg:CU3nNEkbM-VMImB9qzXS3cf8uEwNu7LzITN49r3Zpo\\_1sxZ\\_1GqnaDJajlrPpM4ZDfXkLIOlyrKW\\_1z-H48S-42NF5A\\_18hwheUKZiv3RVbYPojcclxRqbN9ErsZK8sRAjQseLkxQwFqKgB3SNMqEgl9qzXS3cf8uBF07Jf3B7wSXCoSCUwNu7LzITN4EQ3NV6qJgmbIKhIJ9r3Zpo\\_1sxZ8RB0TWPU1BTNEqEgnGqnaDJajlrBE3Aqdsq6nIryoSfcPm4ZDfXkLIEQz719XQaLVSKhIJOLyrKW\\_1z-H4RPd7Wx6idoQ0qEgk8S-42NF5A\\_1xFFioLwsdYY3ioSCchwheUKZiv3EekLsY-gPeLjKhIJRVbYPojcclwR4dj37Dyct7YqEglRqbN9ErsZKxFnLNWLDld2vSoSCCsRAjQseLkxEeUgmDVXQSRakhIJQwFqKgB3SNMR8WAXVS504Ds&tbo=u&sa=X&ved=2ahUKEwjS6oHE-KfhAhUJka0KHWPrAVMQuIIBegQIARaj&biw=1013&bih=449&dpr=1.88](https://www.google.com/search?q=blue+stain+fungus&tbm=isch&tbs=rimg:CU3nNEkbM-VMImB9qzXS3cf8uEwNu7LzITN49r3Zpo_1sxZ_1GqnaDJajlrPpM4ZDfXkLIOlyrKW_1z-H48S-42NF5A_18hwheUKZiv3RVbYPojcclxRqbN9ErsZK8sRAjQseLkxQwFqKgB3SNMqEgl9qzXS3cf8uBF07Jf3B7wSXCoSCUwNu7LzITN4EQ3NV6qJgmbIKhIJ9r3Zpo_1sxZ8RB0TWPU1BTNEqEgnGqnaDJajlrBE3Aqdsq6nIryoSfcPm4ZDfXkLIEQz719XQaLVSKhIJOLyrKW_1z-H4RPd7Wx6idoQ0qEgk8S-42NF5A_1xFFioLwsdYY3ioSCchwheUKZiv3EekLsY-gPeLjKhIJRVbYPojcclwR4dj37Dyct7YqEglRqbN9ErsZKxFnLNWLDld2vSoSCCsRAjQseLkxEeUgmDVXQSRakhIJQwFqKgB3SNMR8WAXVS504Ds&tbo=u&sa=X&ved=2ahUKEwjS6oHE-KfhAhUJka0KHWPrAVMQuIIBegQIARaj&biw=1013&bih=449&dpr=1.88)

### Blue stain found in deciduous trees

[http://www2.llu.lv/research\\_conf/proceedings2017\\_vol\\_1/docs/LatviaResRuralDev\\_23rd\\_2017\\_vol1-120-126.pdf](http://www2.llu.lv/research_conf/proceedings2017_vol_1/docs/LatviaResRuralDev_23rd_2017_vol1-120-126.pdf)

(Fagus, Populus, Quercus, Fraxinus genus, etc.)

Fagus, European beech

Fraxinus genus, Ash

Populus, aspen and cotton wood poplar

Quercus, various Oaks

- [\*Quercus macrocarpa\*](#) — bur oak — eastern and central North America
- [\*Quercus alba\*](#) — white oak — eastern and central North America
- [\*Quercus ellipsoidalis\*](#) — northern pin oak — eastern North America
- [\*Quercus ilicifolia\*](#) — bear oak — eastern North America
- [\*Quercus imbricaria\*](#) — shingle oak — eastern North America
- [\*Quercus marilandica\*](#) — blackjack oak — eastern North America
- [\*Quercus nigra\*](#) — water oak — # eastern North America
- [\*Quercus phellos\*](#) — willow oak — eastern North America
- [\*Quercus rubra\*](#) — northern red oak — eastern North America
- [\*Quercus shumardii\*](#) — Shumard oak — eastern North America
- [\*Quercus velutina\*](#) — black oak or eastern black oak or dyer's oak — eastern North America

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## **Blue stain fungi**

<https://apsjournals.apsnet.org/doi/pdf/10.1094/9780890545041.fm>

## Oak wilt in Toronto

[https://www.toronto.ca/wp-content/uploads/2017/10/88df-forest\\_health\\_care\\_plan-2016-2026.pdf](https://www.toronto.ca/wp-content/uploads/2017/10/88df-forest_health_care_plan-2016-2026.pdf)