

The following samples for which analysis is provided here came from different areas of NY state, and the submitters agreed that some of the information gleaned from these samples could be shared with this listserve.

We are including only the bare diagnostic information that was entered into our database for each sample, but we have attached photos that show how the tissue submitted looked.

We have photos of the entire trees for only one of these sites, so the actual growing conditions for many of these samples is based solely on the written information provided. The site photo is with the last sample, and you may note that the conditions in which these trees are growing are far from ideal.

Also please note that where the diagnosis is:

Confirmed for Unspecified Pathology (*Rhizosphaera* sp./spp.)

This means we could only find the fungus on dead needles; we could not confirm it as a pathogen on green needles on the current tissue sample submitted.

Confirmed for Stigmina Needle Blight (*Stigmina lautii*)

This means we could find the fungus on green needles—but it does not confirm pathogenicity. Our database does not currently provide an option that allows for the fact that this fungus has not yet been proven to be a pathogen.

Inconclusive for Weir's Cushion Rust (*Chrysomyxa weirii*) &
Inconclusive for Cytospora Canker; Dieback (*Cytospora* sp./spp.)

At this time, we could not confirm either of these pathogens on the tissue submitted for the reasons that follow:

Weirs: As I tried to explain in some of these reports, needles that produced viable cushion rust pustules have already dropped from the trees—at least in central NYS. I verified this a few days after receiving these samples by examining trees which I personally observed this rust in May when the fungus was actively sporulating. One other observation that could be made at that confirmed site was that trees near the top of a sloped lawn had significantly less rust than trees near the bottom of the slope. This disease can be much worse and develop higher on trees in lower areas where there is poor air circulation.

Cytospora canker: We only received small branch samples taken from the ends of larger branches. For the best chance of confirming Cytospora canker, portions of larger branches closer to the trunk (that have patches of dried resin) are the best tissue to use to confirm this disease.

Although we had more confirmed evidence of mite and scale pests of conifers than primary pathogens, site issues can be important too. Most of these diagnoses don't cover site issues, but potential problems may be covered in the reports if there is adequate information to determine what types of issues may be present. Photos and a description of the conditions at the site can be helpful.

Timing for disease diagnosis also needs to be taken into account where diseases are suspected. Although we could only confirm a pathogenic *Rhizosphaera* infection on one of these samples, if the same tissue had been submitted 4-6 weeks earlier, we might have confirmed *Rhizosphaera* as a pathogen on samples 261, 262, & 263, and/or may have confirmed Weirs on any of the blue spruce samples.

In any case, I hope you will find some of this information to be helpful.

Tree # 1 Kosters blue spruce: (14-251)

List of Diagnosis/ID(s)

Confirmed for Spider Mites (Family Tetranychidae)

Confirmed for Scale Insects (Order homoptera)

Confirmed for Not Pathogen; Saprophyte (Secondary Agents; Saprophytes; Unspecif.)

Conclusion: (spruce) spider mites likely the primary source of the decline.



While spruce spider mites wouldn't be active during the hotter summer months, injury they caused to needles may show up months after the damage occurs. These photos show pretty severe spider mite feeding injury.



Tree # 2 Kusters blue spruce: (14-252)

Confirmed for Spruce Bud Scale (*Physokermes* sp./spp.)

Confirmed for Unspecified Pathology (*Rhizosphaera* sp./spp.)

Confirmed for Stigmina Needle Blight (*Stigmina lautii*)

Confirmed for Spruce Needleminers (*Endothenia*; *Epinotia* sp./spp.)

Confirmed for Spider Mites (Family Tetranychidae)

Confirmed for Sudden Needle Drop: Spruce Needle Drop (*Setomelanomma holmii*)

This may actually be the worst spruce bud scale infestation I have ever seen. Scales are present at the base of the small twigs exhibiting the reddened needles. As many as 4-6 scales might be found on each twig, and the photo in the lower R corner shows how many crawlers each individual might produce to settle and feed at the base of the newer growth.

Unfortunately, even at a very high infestation level, these pests are easily overlooked as they blend in so well.

Conclusion: spruce bud scale likely the primary source of the decline.



Tree # 3 Kusters blue spruce: (14-261)

List of Diagnosis/ID(s)

Confirmed for Stigmina Needle Blight (*Stigmina lautii*)

Confirmed for Unspecified Pathology (*Rhizosphaera* sp./spp.)

Confirmed for Spider Mites (Family Tetranychidae)

Confirmed for Spruce Bud Scale (*Physokermes* sp./spp.)

Confirmed for Sooty Mold (Unidentified Fungus)

Confirmed for Scale Insects (Order homoptera)

Inconclusive for Weir's Cushion Rust (*Chrysomyxa weirii*)

Inconclusive for Cytospora Canker; Dieback (*Cytospora* sp./spp.)

Conclusion: no single issue confirmed as the source of the decline.



Tree # 4 Koster's blue spruce: (14-262)

List of Diagnosis/ID(s)

Confirmed for Stigmina Needle Blight (*Stigmina lautii*)

Confirmed for Unspecified Pathology (*Rhizosphaera* sp./spp.)

Confirmed for Sooty Mold (Unidentified Fungus)

Confirmed for Scale Insects (Order homoptera)

Inconclusive for Weir's Cushion Rust (*Chrysomyxa weirii*)

Inconclusive for Cytospora Canker; Dieback (*Cytospora* sp./spp.)

Confirmed for Insect Damage (Unidentified Insect)

Conclusion: no single issue confirmed as the source of the decline.



Tree # 5 Kusters blue spruce: (14-263)

List of Diagnosis/ID(s)

- Confirmed for Stigmina Needle Blight (*Stigmina lautii*)
- Confirmed for Unspecified Pathology (*Rhizosphaera* sp./spp.)
- Confirmed for Spider Mites (Family Tetranychidae)
- Inconclusive for Weir's Cushion Rust (*Chrysomyxa weirii*)
- Inconclusive for Cytospora Canker; Dieback (*Cytospora* sp./spp.)
- Confirmed for Insect Damage (Unidentified Insect)
- Confirmed for Algae (General)
- Confirmed for Lichens (Lichenes)

Conclusion: no single issue confirmed as the source of the decline.



Tree # 6 white spruce: (14-264)

List of Diagnosis/ID(s)

Confirmed for Stigmina Needle Blight (*Stigmina lautii*)

Confirmed for Algae (General)

Confirmed for Lichens (Lichenes)

Suspected for Nutritional Deficiency (Abiotic disorder)

Suspected for Root Damage (Abiotic disorder)

Confirmed for Spider Mites (Family Tetranychidae)

Confirmed for Spruce Needleminers (*Endothenia*; *Epinotia* sp./spp.)

Conclusion: no single issue confirmed as the source of the decline.



Tree # 7 Koster's blue spruce: (14-265)

List of Diagnosis/ID(s)

- Confirmed for Stigmina Needle Blight (*Stigmina lautii*)
- Confirmed for Rhizosphaera Needle Cast (*Rhizosphaera* sp./spp.)
- Confirmed for Spider Mites (Family Tetranychidae)
- Inconclusive for Weir's Cushion Rust (*Chrysomyxa weirii*)
- Inconclusive for Cytospora Canker; Dieback (*Cytospora* sp./spp.)
- Confirmed for Algae (General)

Conclusion: no single issue confirmed as the source of the decline.



Above: larger spruce trees crowded at the edge of a forest. Note lack of weed control and close planting of trees.