



Acer griseum, the paper bark maple, has NORMAL exfoliating bark as seen here.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Scattered loss of older needles on evergreens is **NORMAL** as seen here on this Mugo pine. (Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



NORMAL fall yellowing (photo provided by Margery Daughtrey)



Hurricane injury (salt injury) after Tropical Storm Sandy. Shows some needles that missed the browning, and a different look because they are browning back from the tips. ABNORMAL (photo provided by Margery Daughtrey)



The powdery, dusty structures seen on this slide may cause some alarm but it is just the leaf hair on this variety on Rhododendron known as yakushimanum. If we looked at all of the leaves on this shrub and all of the shrubs in this planting, they would have similar characteristics. If we researched this particular cultivar of Rhododendron we would discover that this cultivar produces an abundance of these leaf hairs that cover the leaves and this is NORMAL.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



The powdery, dusty structures seen on this slide should cause alarm as it is a disease causing agent, a powdery mildew fungus. The powdery substance on the leaves in this case not on all the leaves and only on one or two of the shrubs in this planting. This is an ABNORMAL characteristic.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Here are some strange looking white balls on a Pitch Pine. One might guess that some type of insect has infested this tree. However, if we know of these plants, we know that "pitching" is a NORMAL production of Pitch Pine. Pitching is an exudate produced by the plant.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Again some strange looking white balls on a Douglas Fir this tiem. It is an ABNORMAL condition that consist of insects, the Cooley Spruce Gall Adelgid and Douglas Fir is the alternate host of this critter. We have the Cooley Spruce Gall Adelgid in our area but we see more of a close relative the Eastern Spruce Gall Adelgid. It produces these structures that resemble normal cones. Closer inspection is required to determine which is present, just cones or the adelgid.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



This Mimosa root system appears to have abnormal bumps and round protrusions on it. Again we need to know our plants because this is a NORMAL condition of this plant. The Mimosa belongs to the family Leguminosae, which produces characteristic nitrogen fixing nodules. This could easily be confused with Cyst or Root Knot nematode damage. Root Knot Nematode infect plant such as Swiss Chard, Beet, and Carrot. If viewed under a dissecting scope, the female body could be teased out of those bumpy areas. In contrast, the Mimosa nitrogen fixing nodules are just corky plant tissue. The Cyst nematode can also be confused with the nitrogen fixing nodules but again they can be removed from the root and dissected to find vermiform juveniles and eggs within the cysts.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Coleus Downy Mildew Sporulation on Underside. ABNORMAL (photo provided by Margery Daughtrey)



Kale xanthomonas bacteria. ABNORMAL (photo provided by Margery Daughtrey)



Arborvitae leaf miner. ABNORMAL (photo provided by Margery Daughtrey)

**SORT:
NORMAL OR ABNORMAL?**



Loblolly pine killed by the Southern pine beetle. Damage in the PLANT COMMUNITY.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Cotton field with chemical damage. Various patterns may be produced by chemical drift in a field. Damage in the PLANT COMMUNITY.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Phytophthora cinnamoni damage on a Rhododendron. Damage AN INDIVIDUAL PLANT.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Round up (herbicide) spray drift damage patterns. Damage in the PLANT COMMUNITY.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



A fairy ring pattern formed by a fungus grows in a circular pattern randomly. Damage in the PLANT COMMUNITY.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Damage ON AN INDIVIDUAL PLANT/PLANT PART. Damage pattern on the American Elm infected with the Dutch Elm Disease, *Ophiostoma ulmi*.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Manganese deficiency on Spruce. Damage ON AN INDIVIDUAL PLANT/PLANT PART. (Though you are unable to assess the community's health based strictly on this photo).

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Iron deficiency on Rhododendron. In this case the available nutrients are kept in the older growth leaving the new growth deficient and chlorotic. Damage ON AN INDIVIDUAL PLANT/PLANT PART.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)

SORT:

**DAMAGE IN THE PLANT COMMUNITY OR
ON AN INDIVIDUAL PLANT/PLANT
PART?**



Loblolly pine killed by the Southern pine beetle. This is a NON-UNIFORM pattern of damage caused by a pest.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Cotton field with chemical damage. Various patterns may be produced by chemical drift in a field. Chemical drift produces UNIFORM patterns that do not spread.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Phytophthora cinnamoni damage on a Rhododendron. This is a NON-UNIFORM pattern. Symptoms are on one plant and the surrounding plants look fine. Also look for the junction point of damaged vs. non-damaged tissue. Remember don't ignore the roots.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Round up (herbicide) spray drift damage patterns also cause UNIFORM damage as seen on Photinia, all the plants are damaged. Other herbicide injuries show movement in the rain storm runoff and a sprayer's foot prints from a grass herbicide application.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



A fairy ring pattern formed by a fungus grows in a circular pattern randomly in this lawn. An example of a NON-UNIFORM pattern of damage.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



This is a NONUNIFORM
(the entire tree is not browning) damage pattern on the American Elm infected with the Dutch Elm Disease,
Ophiostoma ulmi.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint
Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Manganese deficiency on Spruce. Any available nutrients are mobilized into the new growth, therefore, symptomatic yellowing occurs in the older growth, UNIFORM damage pattern.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



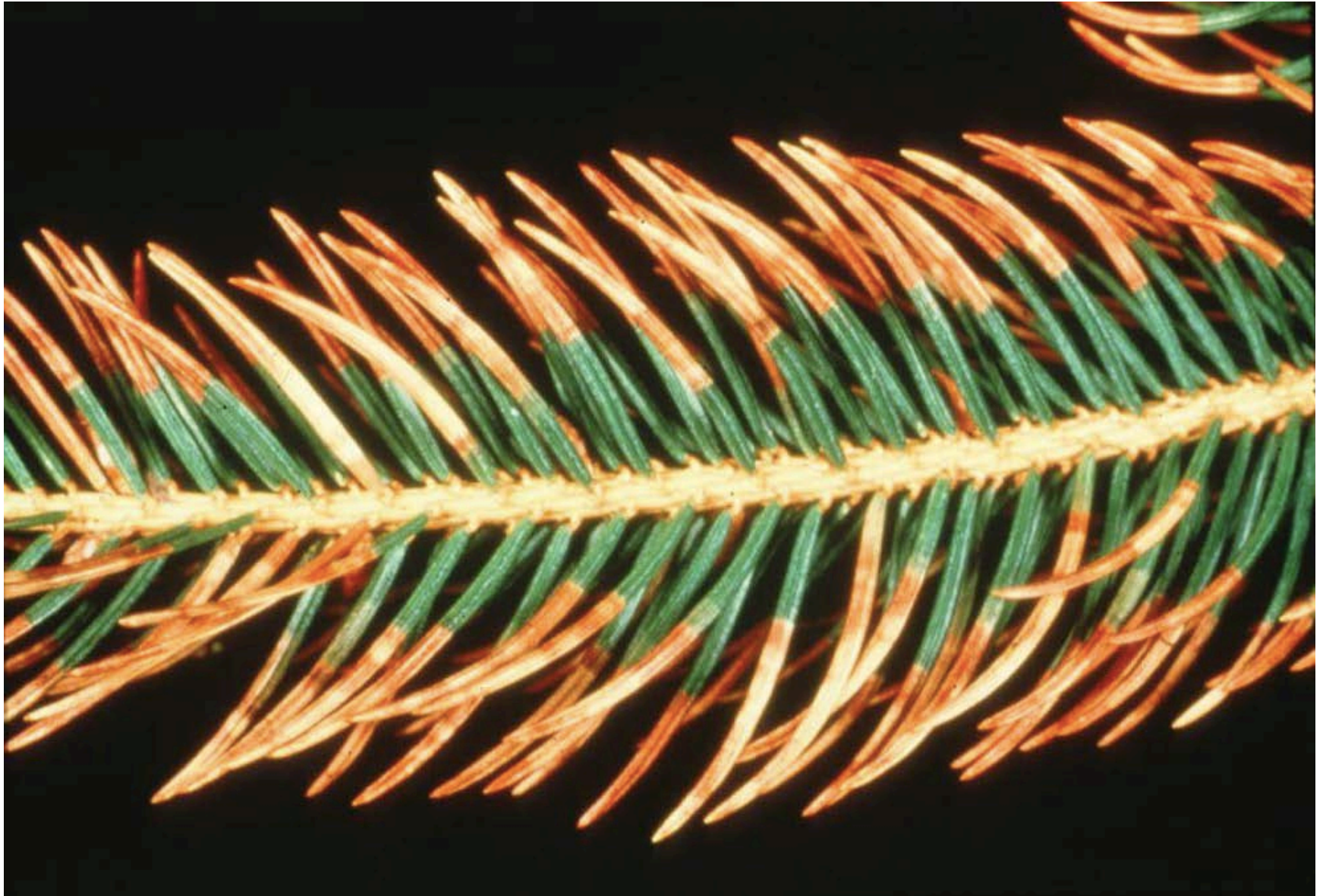
Iron deficiency on Rhododendron. In this case the available nutrients are kept in the older growth leaving the new growth deficient and chlorotic and characteristic of an abiotic, UNIFORM damage pattern.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Rhabdocline needle blight on Douglas Fir. Notice the random or NON-UNIFORM pattern of damage of the branches on this tree.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



This evergreen's damage pattern is very UNIFORM, affecting the tips of the needles. This is an example of an abiotic damage event, freeze damage.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Downy mildew of Buddleia caused by Peronospora harotii. Very random NONUNIFORM damage pattern shown here is characteristic of a disease infection.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)



Kalmia with a viral infection. The random NON-UNIFORM swirling damage pattern shown here is almost artistic in nature. A unique virus that affects Kalmia and Rhododendron. It has only been detected on certain cultivars and only on one or a few leaves of a plant.

(Photo sourced from the Cornell Plant Disease Diagnostic Clinic 'Diagnosing Plant Problems Powerpoint Presentation,' <http://plantclinic.cornell.edu/mastergardner.html>)

SORT:
UNIFORM OR NON-UNIFORM PATTERN?