

# Conifer needle diseases

**Needle Cast:** Group of fungal diseases of conifers causing premature senescence and casting of needles.

**Needle blight:** Group of fungal diseases of conifers causing needle cast, dieback, cankers, and death of highly susceptible trees

# Brown spot needle blight

**Pathogen:** *Mycosphaerella dearnessii*

## **Hosts:**

longleaf, ponderosa, Scots pine and Christmas trees.

the fungus overwinter on **diseased needles both on the ground and those retained on the tree.**

Small yellow, light green or reddish brown irregular circular spots on the needles.

- Spots turn brown, often with a yellow halo. Brown spots can usually widen to bands encircling the needles.
- Usually, second and third year needles are affected, and are prematurely shed, leaving only tufts of new needles at the branch tips,
- Infection is most severe in the lower branches and young tree.

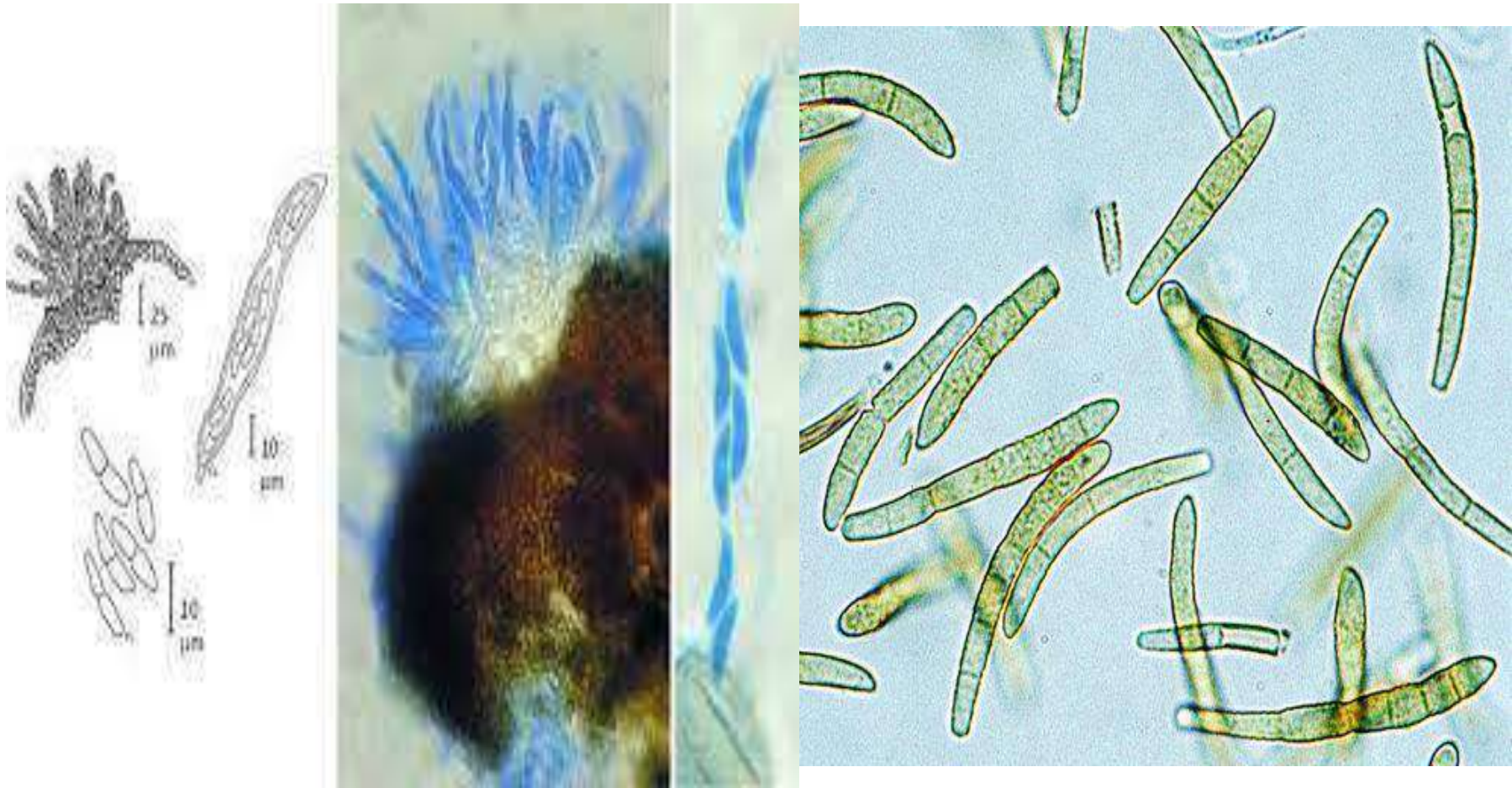


Needle tip dies and turns brown.  
The base of needle remains green with random  
yellow-to-brown spots in the center of the  
needle.

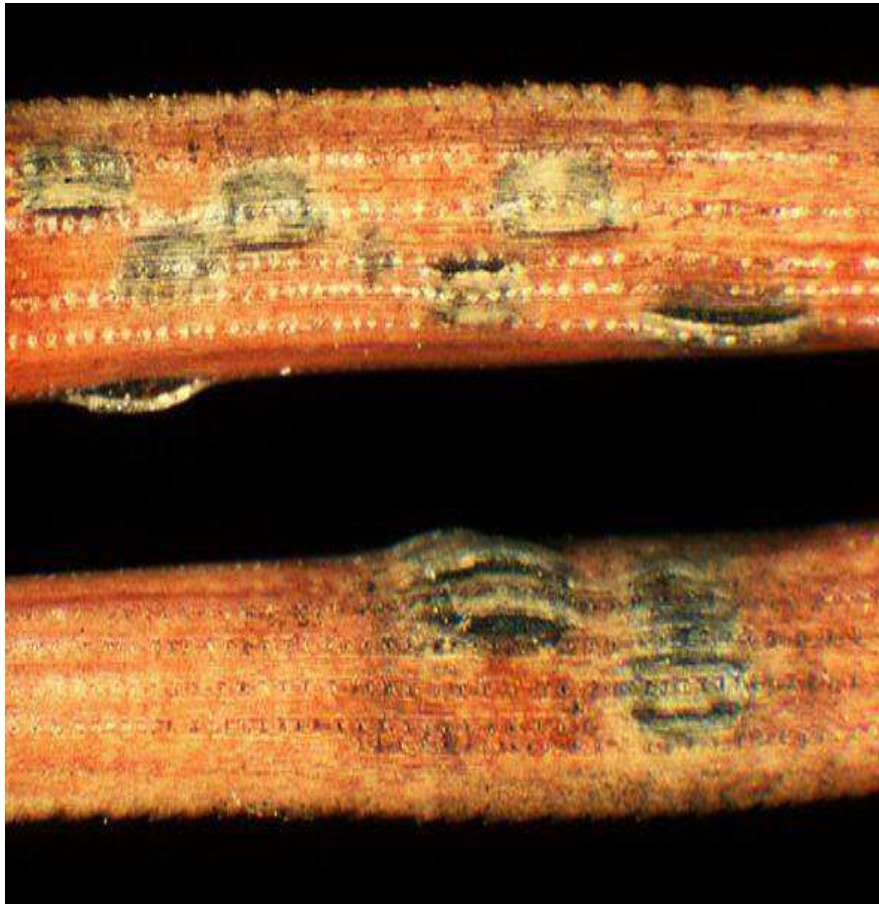




Spores are released from the fruiting bodies (acervuli) on the needles throughout the year. The spores are splashed short distances by rain drops and wind.



fruit bodies of *Mycosphaerella dearnessii*  
rupturing the needle epidermis of *Pinus* trees





# Management

**Sanitation:** Remove and dispose of diseased needle on the tree and dropped needles on the ground.

**Using resistant varieties.**

**Avoid overhead watering:** Since splashing water spreads the spores

**Wide spacing between plants:**

to provide airflow and sunlight penetration to the lower portions of the crown as trees grow.

**Fungicide application:** copper, chlorothalonil and mancozeb

# ELYTRODERMA NEEDLE CAST

**PATHOGEN:** *Elytroderma deformans*

**Hosts:** The disease is most severe on ponderosa pine, but lodgepole pine, jack pine, and pinyon pine are also susceptible.



## **The fungus overwinters in three ways:**

- 1- in the cast needles.
- 2- as a new infection in green current.
- 3- as a perennial infection in buds and twigs.

The disease reduces the crown growth.

It also reduces the vigor of the trees and causes increased susceptibility to other pathogens and bark beetles.

## Symptoms on needles

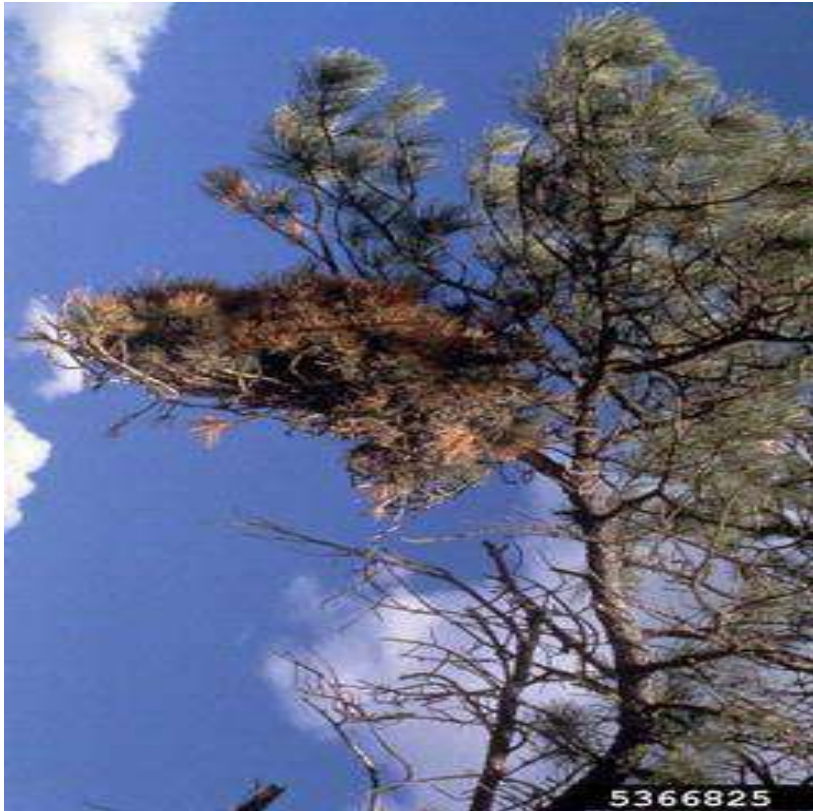
- 1- Stunted and yellow current growth
- 2- Needles from previous year turn red in spring then fade to grey and fall off.
- 3- Repeated needle loss results in needle stunting and a “lion’s tail” appearance.





# Branch symptoms

the stunted branches are compacted resemble brooms



Infected branches have short internodes



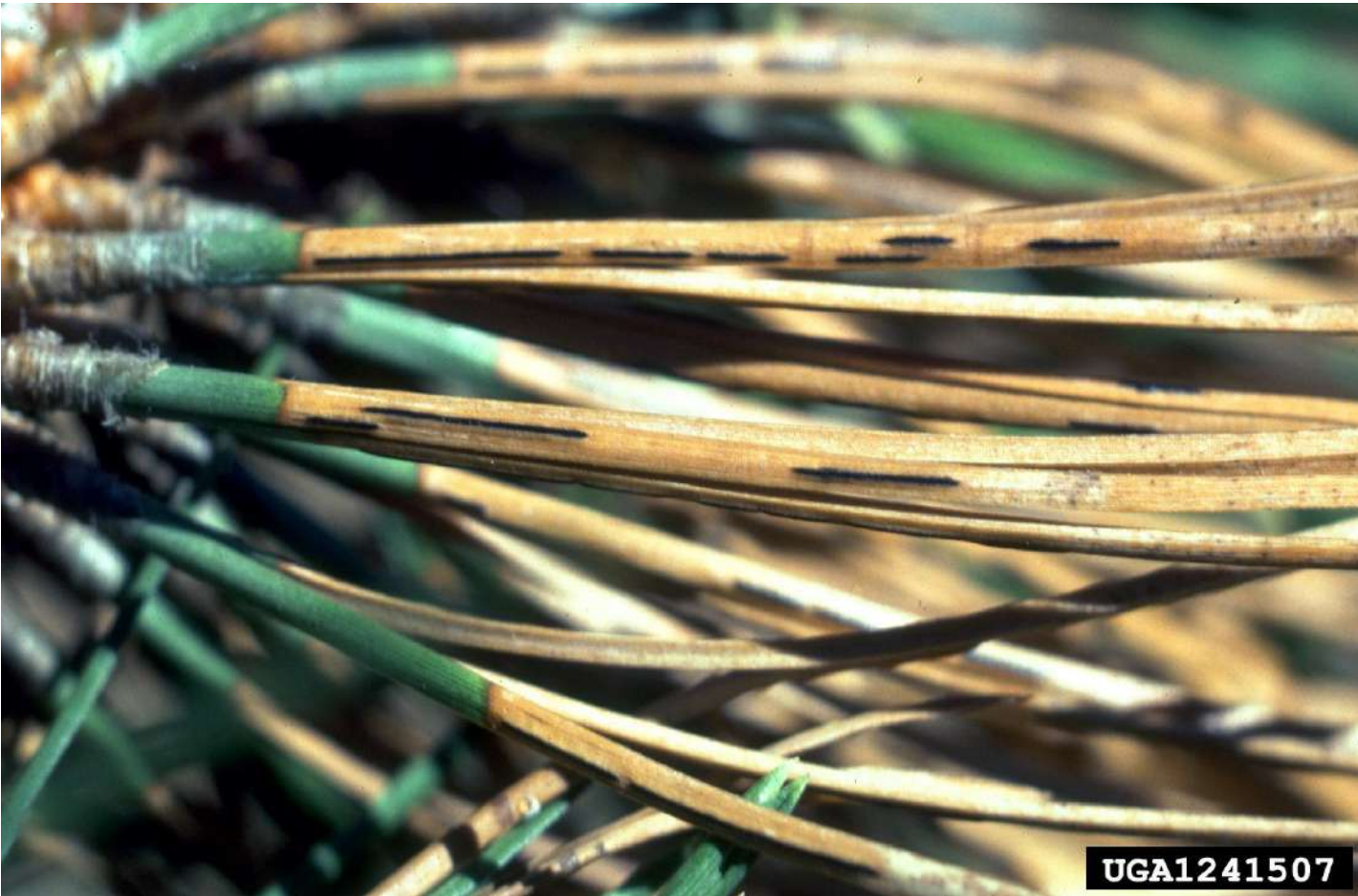
# symptoms

Brown dead lesions develop in the inner bark of twigs and branches.





Fruiting bodies appear as short black lines on dead needles



# management

- 1- Damage can be reduced by maintaining good spacing through thinning.
- 2- Selectively remove moderately and severely infected trees and trees with infections high in the crown.
- 3- Remove all trees with more than one-quarter of their twigs killed.

# Lophodermium Needle Cast

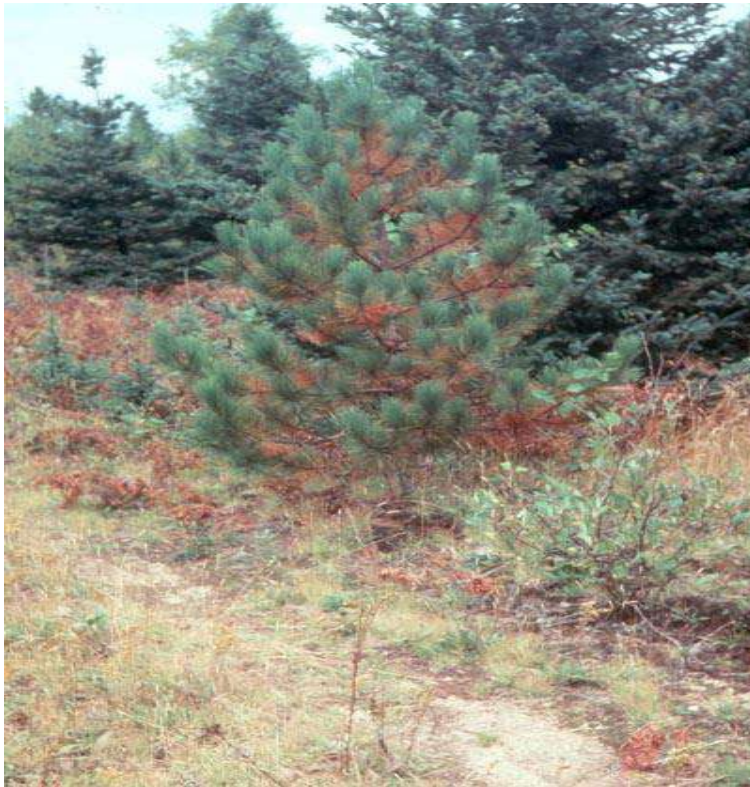
**Causal agent:** *Lophodermium seditiosum*

**Hosts:** Scots pine, red pine and monterey pine are the most susceptible hosts.

Degree of susceptibility varies greatly, depending on pine species and lophodermium species.

## symptoms

Small pale spots appear on the needles as the first symptoms. These spots enlarge and spread, they become reddish brown. Gradually the entire needles will change colors and die.





# Fruiting bodies appear on infected brown needles



# management

- 1- Remove heavily infected trees to limit inoculum.
- 2- plant resistant species among pines.
- 3- Good air flow keeps trees drier and helps to prevent infection.
- 4- pesticide application

# Cedar leaf blight keithia leaf blight

**Causal agent:** *keithia thujina*

*Didymascella thujina*



## hosts

Western red cedar (*Thuja plicata*) is the most susceptible host at all ages.



# symptoms

Symptoms begin as yellowing or browning of the individual infected leaf scales.

The infected scales turn completely brown. Diseased foliage will either turn gray or drop off.





One to several dark brown or black fruiting structures (apothecia) develop on the infected scales.



# management

1. Pruning and burning affected twigs .
2. Remove plant debris.
3. Resistance to leaf blight
4. Applications of fungicide .

# Juniper tip blight phomopsis tip blight

**Causal agent:** *phomopsis juniperovora*,  
*cabatina juniperi*

**hosts:** juniper, white cedar, thuja, and  
cypress



# symptoms

Young shoots turn yellow then brown within weeks of infection.



Dieback begins with shoot tips, and progresses back toward the main stem and the entire plant may die.



black fungal fruiting bodies (pycnidia) develop on the dead needles and twigs.



# management

- 1- Planting resistant junipers.
- 2- All blighted twig tips should be removed and burned or buried to eliminate the sources of infection.
- 3- Plants should be spaced so as to provide good ventilation. This will reduce high moisture conditions which favor these diseases.
- 4- Overhead irrigation should be avoided
- 5- protect trees from mechanical wounds.
- 6- juniper midge insect can create wounds for this reason the insecticide should be applied.
- 7- applying fungicides, thiophanate methyl and mancozeb