

Lab 6: Decay Fungi & Cankers

FRST 307

Decay Fungi

- Wood decay is a deterioration of wood by primarily enzymatic activities of fungi
- **White rot:** usually turns whitish because of bleaching by oxidation & loss of lignin (which is slightly brown); wood is fibrous because some cellulose remains intact until very advanced decay
- **Brown rot:** is brown because carbohydrates are removed, leaving brownish, oxidized lignin; less fibrous texture because the cellulose is broken up early

All of our Decay species are in the division **Basidiomycota**

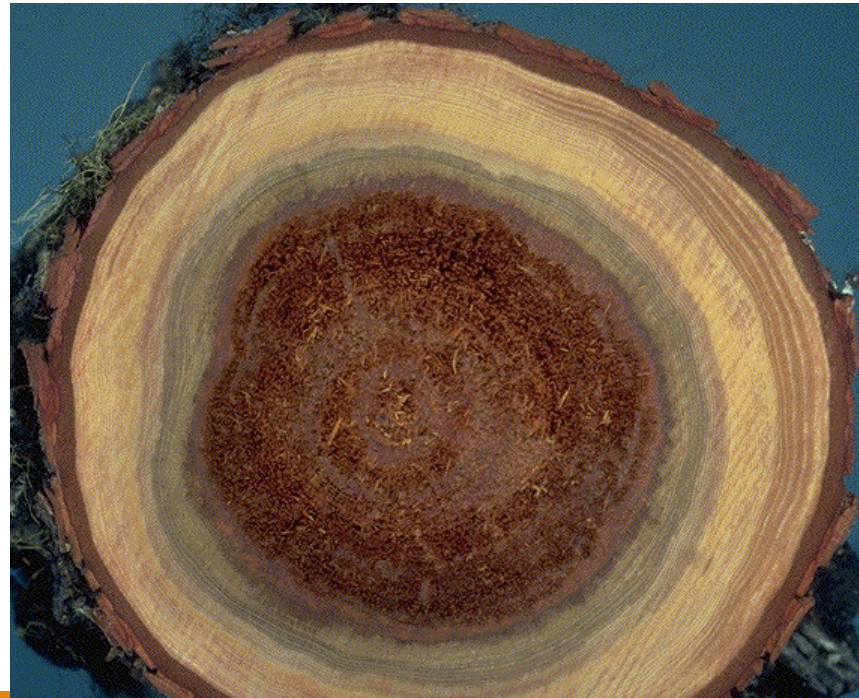
Echinodontium tinctorium

Brown stringy trunk rot

Indian paint fungus

Hosts: mainly hemlock and true firs, most common in ICH

Advanced decay: heartwood reduced to brown, fibrous, stringy mass which may disintegrate and form a cavity in the tree



Fomitopsis officinalis

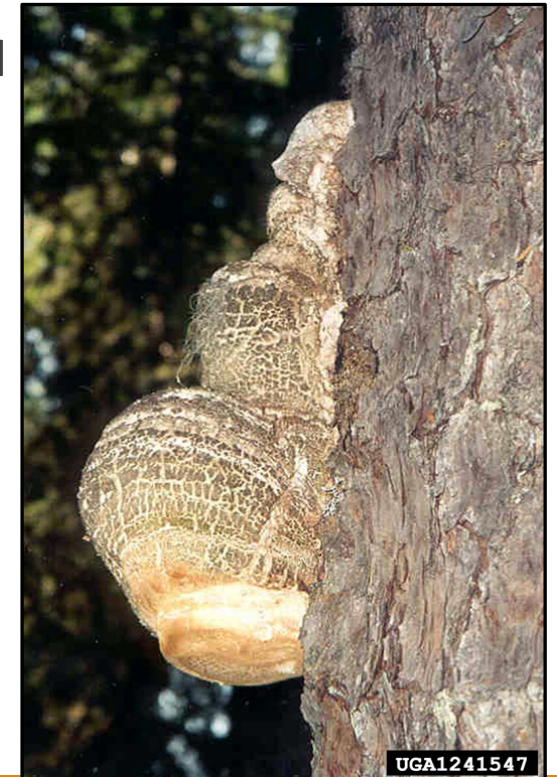
Brown trunk rot

Quinine fungus

Hosts: commonly found in larch and old-growth Douglas-fir in the Pacific NW

Type of Decay: Brown cubical rot of heartwood

Difference from other brown cubical rots* → thicker mycelial mats and found higher on the stem



Fomitopsis pinicola

Brown crumbly rot

Red band fungus

Hosts: dead conifers (less frequently found in living trees), particularly of hemlock, true firs, spruces, and other species lacking strong heartwood toxins

Incipient decay appears as yellow brown to brown stain

Advanced decay: Brown crumbly cubical rot of heartwood – generally lighter colour than most cubical rots



Ganoderma applanatum

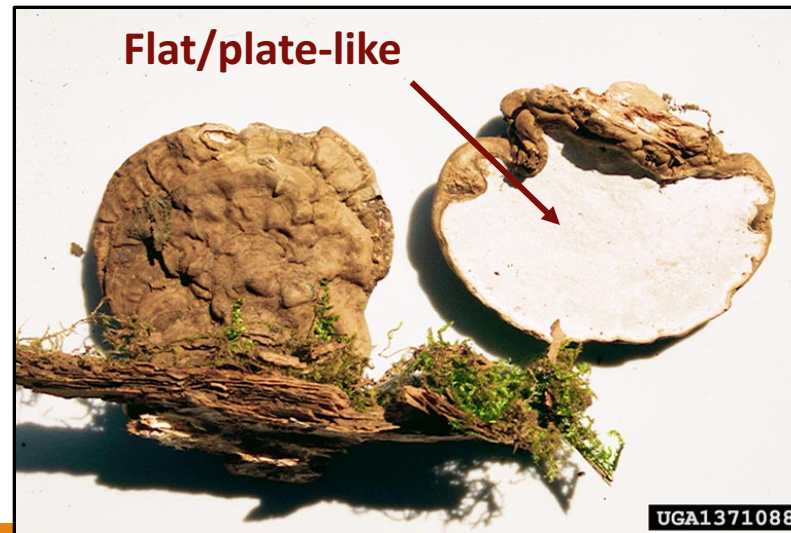
White mottled rot

Artist conk

Hosts: found on aspen , alder and maple, also on conifers.

Incipient decay: wood looks bleached and encircled by a dark brown stain

Advanced decay: wood becomes white, mottled and spongy



Gloeophyllum sepiarium

Brown cubical sap rot

Rusty gilled polypore or slash conk

- Hosts: dead hardwoods (throughout NA) and conifers (PNW)
- Incipient decay: yellow-yellow brown pockets of discolouration on sapwood
- Advanced decay: typical brown cubical rot with yellow to yellow-brown mycelial felts in shrinkage cracks



Laetiporus sulphureus

Brown cubical rot

Chicken of the woods

Hosts: living and recently killed conifers, particularly hemlock and Sitka spruce

Incipient decay: light brown stain

Advanced decay: wood breaks into small, red-brown cubes, relatively thick white mycelial mats may form in the shrinkage cracks within the decay



Phellinus pini

White pitted rot

Red ring rot

Hosts: all conifers, but especially common on Douglas-fir, spruce, and pine

Incipient decay: red-stain in heartwood

Advanced decay: spindle-shaped zones of white fibres are produced running parallel to the grain - pitted



Phellinus tremulae

Aspen trunk rot

Host: Aspen (trembling Aspen)

Incipient decay: a yellow/white zone in heartwood surrounded by a yellow-green to brown margin

Advanced decay: soft white-yellow wood usually contains fine black zone lines running throughout



Stereum sanguinolentum

Red heart rot

Bleeding fungus

Hosts: common on slash, but also causing extensive heartrot in mature, living pine, spruce, and true firs.

Incipient decay: firm and appears as red-brown heartwood stain

Advanced decay: wood becomes light brown to red-brown, soft and fragile in texture



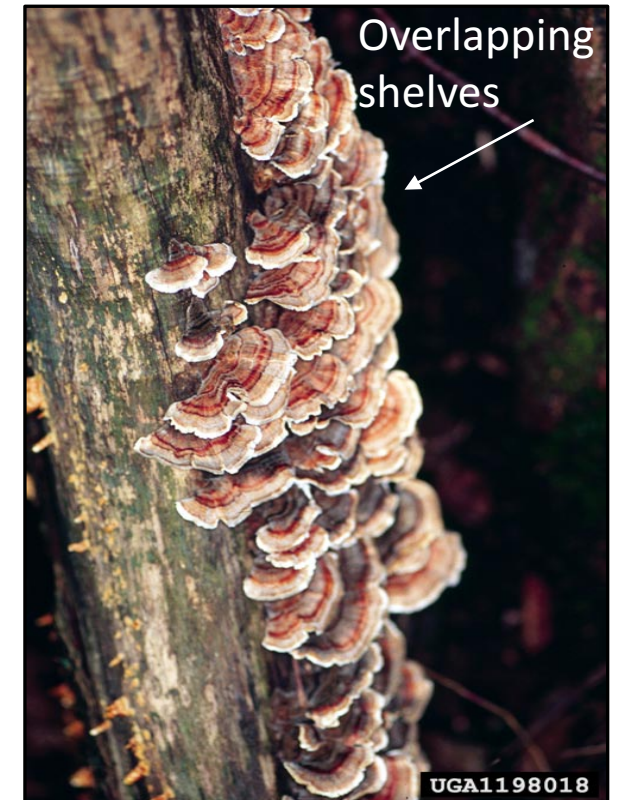
Trametes versicolor

White soft stringy hardwood rot

Turkey tail

Hosts: dead hardwoods in the west

Decayed wood is soft, light in colour, and often exhibits dark zone lines



Trichaptum abietinum

Pitted sap rot

Purple pore fungus

Hosts: dead standing or down coniferous trees.

Incipient decay: wood = light yellow to tan and soft

Advanced decay: pitted white rot



Cankers

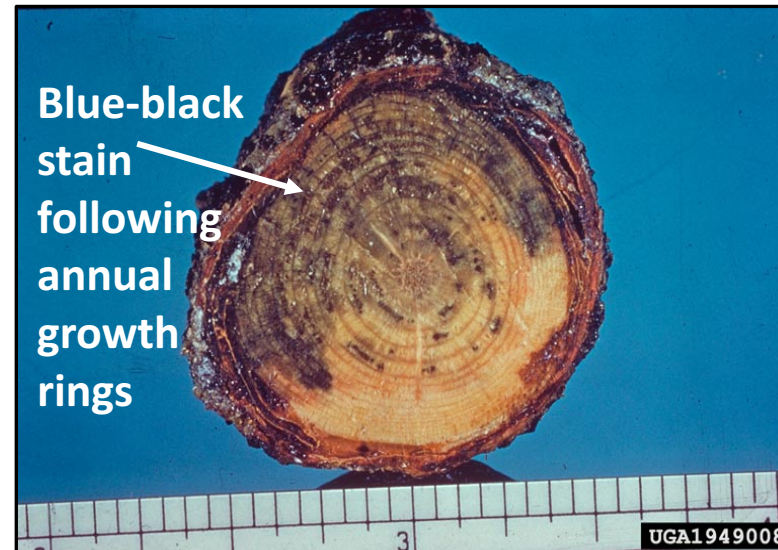
- Results from the death of definite and relatively localized areas of bark on branches and stems
- Often need a point of entry – injury (from insects, etc.)
- Attack living cells in phloem, cambium, xylem
- All our species are in the division **Ascomycota**

Atropellis piniphila

Atropellis canker

Hosts: hard pines (any member of subgenus *Pinus*)

Symptoms: long, narrow, sunken patches of dead bark with copious resin flow and a blue-black stain in the underlying sapwood

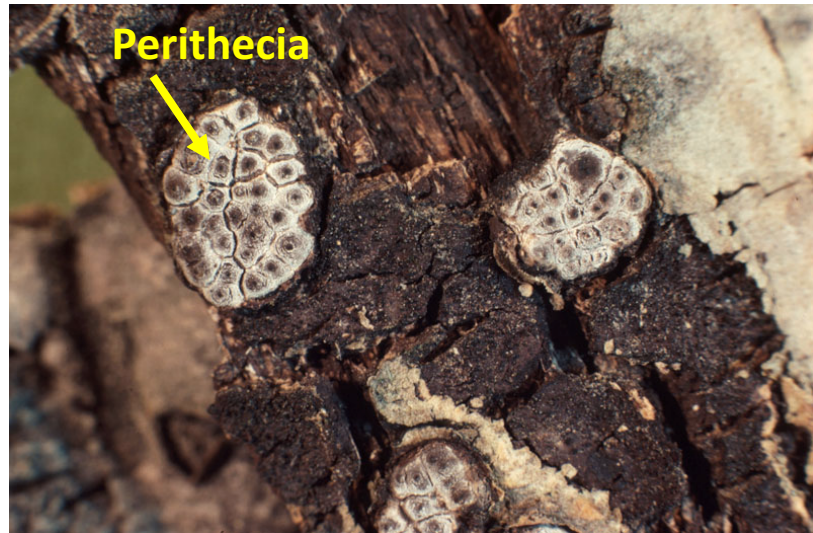


Hypoxylon mammatum

Hypoxylon canker

Hosts: Aspen species

Immature cankers appear yellow and fade to black as they age



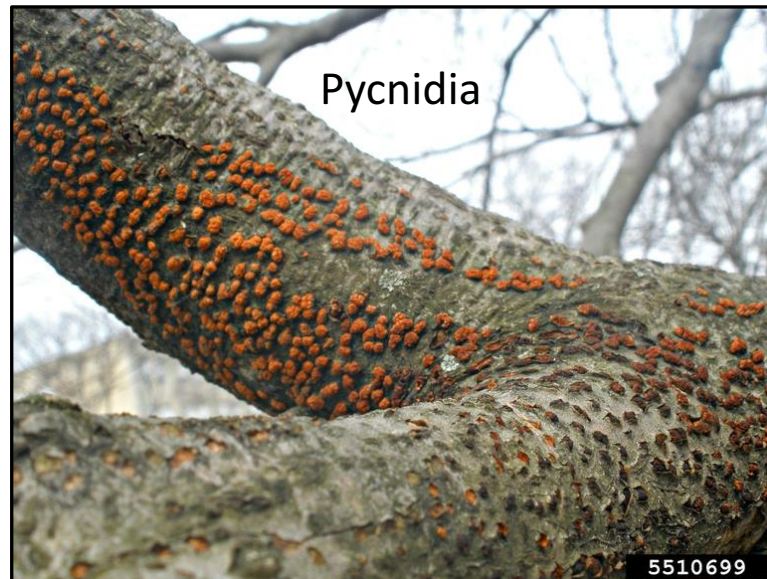
Nectria spp.

Nectria canker

Hosts: several hardwood species

Abundant red-orange pycnidia (fruiting bodies) on bark near canker

Initial signs in spring: sudden wilting of leaves or failure of leaves to appear



Decay Fungi and Cankers: Species List

- *Echinodontium tinctorium*
- *Fomitopsis officinalis*
- *Fomitopsis pinicola*
- *Ganoderma applanatum*
- *Gloeophyllum sepiarium*
- *Laetiporus sulphureus*
- *Phellinus pini*
- *Phellinus tremulae*
- *Stereum sanguinolentum*
- *Trametes versicolor*
- *Trichaptum abietinum*
- *Atropellis piniphila*
- *Hypoxylon mammatum*
- *Nectria* spp.