Decay Fungi- Indicators of Tree Defect in Southeast Alaska

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Decay fungi cause enormous economic loss to the forests of coastal Alaska. They also play vital ecological roles by cycling nutrients, causing gap-level disturbance, providing wildlife habitat, and enhancing diversity. This guide is designed to assist in the recognition of decay organisms and other possible tree defect factors.
RED BELT FUNGUS

*Fomitopsis (Fomes) pinicola*

- Any location on wood; abundant
- Conk is perennial, shelf shaped
  - Top is black or grey, with or without red band on edge
  - Bottom is creamy white
- Causes brown cubical rot
- Young-growth: cull 8’ above and below, Old-growth: cull 16’ above and below
CHICKEN OF THE WOODS
Laetiporus sulphureus

• Usually on lower main bole
• Conk large, shelving in clusters
  ▪ Upper and lower surfaces are bright yellow or orange
  ▪ Conk is white, soggy after it dies
• Causes brown cubical rot
• Cull 8’ above and 8’ below conk
VELVET TOP FUNGUS
*Phaeolus (Polyporus) schweinitzii*

- Located at base of tree, lower bole, or arising from roots near tree
- Conk is annual, large clustering
  - Top and bottom brown, velvety yellow, green, or brown margin
  - Conk is dark brown when dead
- Causes brown cubical rot
- Cull first 16’
QUININE CONK
*Fomitopsis (Fomes) officinalis*

- On bole with branch stubs, wounds, usually on spruce or pine
  - Conk is large, hoof shaped
  - Top white, grey, or white-green
  - Bottom is white
  - Inside is white, chalky, bitter
- Causes brown cubical rot
- 1 conk=cull entire tree
RED RING ROT

*Phellinus (Fomes) pini*

- Any Location on bole of live trees, especially under branch crotches
  - Conk is perennial, shelf-shaped
  - Top is dark brown, hairy
  - Bottom is rusty, pores angular
  - Inside is bright rusty brown
  - Causes white pocket rot
- Cull 20’ above and below conk, 1 conk on hemlock=cull whole tree
ARTIST’S CONK
_Ganoderma (Fomes) applanatum_

- On bole, usually of downed trees
- Conk is perennial, shelf shaped
  - Top is dusty with orange-tan spores
  - Bottom is white, turning dark brown rapidly when touched
  - Inside is dark brown
- Causes white rot
- Cull 8’ above and 8’ below conk
ARMILLARIA SHOE STRING ROT

*Armillaria* spp.

- Usually on roots or lower bole
- Mushrooms uncommon, occur at tree base, variable, yellow-tan
- Black shoe-string-like structures & white mycelia fans common
- Causes white stringy rot
- Cull first 16’
BOREALIS CONK
*Climacocystis (Polyporus) borealis*

- On bole, near base of tree
- Small, annual shelving white conk
  - Top is white, shaggy
  - Bottom is white, has large pores
- Causes white mottled rot
- Host is Sitka spruce
- Cull 4’ above stump height
YELLOW CAP FUNGUS

*Pholiota adiposa*

- On bole, usually near base
- Mushrooms in clusters, yellow-brown scales on cap
- Gills yellow or brown
- Causes brown-mottled white rot (classified as white rot)
- Cull first 16’ of tree if occurring at base, if above base of tree cull 16’ above and below conk
LACQUER CONK
Ganoderma tsugae

• On bole, usually on downed tree
• Conk is often large, solitary on stalk
  ▪ Top is shiny, red-brown crust
  ▪ Bottom is white with pores
  ▪ Inside is creamy white
• Causes white rot
• Cull the entire log/ tree
CORAL FUNGUS

Hericium abietis

• On bole, usually with large scar
• Conk is large, white or cream, fragile pendant spines (teeth)
• Causes white rot with small pockets
• Deduct 6’ above and 6’ below the conk
INDIAN PAINT FUNGUS

*Echinodontium tinctorium*

- Any location on bole of hemlock
  - Conk is perennial, hoof-shaped
  - Top is black, hard, cracked
  - Bottom is grey spines or teeth
  - Inside is bright red or orange
- Causes laminated stringy white rot
- Cull 20’ above and 20’ below a single conk. If conks are separated by more than 25’ cull the entire tree
ANNOSUS BUTT ROT

*Heterobasidion annosum*

- Located at tree base, often in duff
- Conk uncommon
  - Top is brown or black
  - Bottom is white, no pores in wide band around irregular margin
- Causes white spongy or pocket rot
- Cull the first 16’ of tree
BLACK SEAM

- Can appear on all tree species
- Indicates some level of decay
- Amount of defect determined by judgment
BASAL SCAR

- Large open wound at base of tree
- Some caused by animals, logging equipment, falling trees, etc.
- Decay amount is related to size and age of scar
BOLE SCAR

- Open wound below merchantable top and above ground
- Old and large scars have the highest degree of wood decay
BOLE FLUTING

• On boles of western hemlocks, sometimes far up bole
• Ridges and deeply incised folds, with bark occurring in wood
• Not necessarily associated with rot unless tree has other indicator
BOLE DEFORMITY

• Usually on western hemlock
• Often caused by dwarf mistletoe
• May have sound wood, or may be associated with decay, especially if exposed decay or conks are present
BURLS

- Common on Sitka spruce
- Cause is unknown
- Many burls are sound, unless they have visible decay or conks
DEAD STANDING TREE

• May be sound, or have:
  ▪ Internal heartwood decay
  ▪ Sapwood decay
  ▪ Staining
  ▪ Checking

• Amount of decay carries greatly by time-since-death and tree species