

Glossary

A

Abdomen: Posterior part of the insect's main body divisions.

Abiotic disorder: Interference of the normal functioning of a plant that is caused by some non-living factor (e.g., weather) and not by an organism (pathogen or insect); symptoms may be similar to a biotic disease.

Aecia: A cuplike structure bearing aeciospores in the rust fungi.

Adult: Full-grown, sexually mature insect; usually with wings in contrast to larvae which lack wings.

Alternate host: One of the two dissimilar plants infected by a heterocyclic fungus, i.e., rust fungi that use two hosts to complete a life cycle.

Arthropod: A member of the largest phylum in the animal kingdom including insects, crabs, spiders, etc.

B

Basidiospore: Spore formed after sexual recombination has occurred.

Biotic: A living organism.

Blue stain: A bluish to grayish discoloration of sapwood of a killed tree caused by fungi that utilize the material without causing decay, has no effect on the strength of the wood.

Brown rot: Brownish, dry, crumbly decay of wood caused by fungi decomposing cellulose and leaving the lignin in a modified state; may occur in areas surrounded by sound wood. Decayed wood typically breaks into cubical shapes.

Boring-dust: Fragments of phloem or wood excavated by adult bark beetles as it bores through the outer bark; brown to tan, often found in small piles in bark crevices and around the base of a tree.

Brood: The offspring or next generation of young hatched from eggs laid by one series of parents, and that mature about the same time.

C

Callus: Healing tissue of trees on branches, boles, or roots that attempts to grow over scars or wounds.

Cambium: Layer of cells between xylem and bark, forms additional xylem and phloem elements.

Canker: Localized, dead, sometimes sunken, portion of the cambium and bark of branches or the bole of a tree, often caused by a pathogen. Many layers of dead callus folds surround some cankers as the tree repeatedly attempts to heal the dead portion, only to have the pathogen kill the callus folds.

Chlorosis: (adj. chlorotic) An unseasonable yellowing of the foliage, may occur in bands on needles.

Cocoon: A thin covering often largely of silk which an insect larva forms about itself and in which it passes the pupal stage.

Conk: Fruiting body of a wood-decay fungus, often hoof or bracket-shaped and perennial, although some are annual; other than a mushroom.

Context: Interior tissue of a fruiting body.

Cornicle: Dorsal tubular processes on the posterior portion of the abdomen; common on aphids.

Cortex: Rind or outer layer.

Crawler: The dispersal life stage of aphids and scale insects.

Crop tree: Tree left after thinning, often because of superior quality or species and lacking defect or disease.

D

Decay: Rot or destruction and decomposition of plant material by fungi; wood decay is typically separated into brown or white rot depending on the wood compounds consumed.

Declivity: A term used to describe the descending distal slope of beetle forewings. For example, *Ips* beetles have spines on their elytral declivity, while *Dendroctonus* species have a rounded elytral declivity.

Defoliator: An organism that causes damage to plant foliage.

Diapause: The dormant phase of some insects. Can be either facultative or obligatory.

Dioecious: Male flowers and female flowers on different individual plants, as in mistletoe.

Disease: A disturbance of a plant caused by a pathogen (not an insect) or environmental condition that interferes with the plant's normal growth, structure, or reproduction. See also abiotic disorder.

E

Egg niche: A small impression or incision created by female bark beetle in which an egg is deposited.

Elytra: Hardened forewings of beetles that serve to protect the functional posterior wings.

Endemic: Typical, nonepidemic population.

Endophytic: An organism living within tissues of a live plant, as in mistletoe.

Epidemic: Large-scale, temporary increase in an insect or disease population.

F

Fecundity: Ability to produce young.

Flagging: Dying or recently dead branches; contrasting in color with the normal green color of a living tree.

Frass: Solid insect excrement, usually in small pellets; many times mixed with boring dust.

Fruiting body: A general term for any fungal spore-producing structure. See also conk or mushroom.

Fungus: (plural=fungi) An organism incapable of producing its own food supply by photosynthesis, usually having microscopic thread-like feeding structures (hyphae) and reproductive spores. Fungi cause decay of plant material.

G

Gall: An abnormal growth of plant tissue, stimulated by insect or fungal activity.

Gallery: Engraving of cambium or bark caused by bark beetles. Beetles create both egg galleries and feeding galleries. Design of egg galleries are used to identify beetle species.

Genus: A group of closely related species. Similar genera are grouped in a family.

Girdle: The act of damaging the cambium completely around the circumference of the stem, root or branch, typically causing death of the tree or tissue beyond the point of girdling.

Gregariously: Insects tending to feed or remain in groups.

Grub: Thick-bodied larva, one stage of an insect, typically a beetle, wasp, or bee, usually sluggish.

H

Heartwood: Central mass of tissue in tree trunks, with no living cells and no longer functioning in water conduction, contributes to mechanical support.

Heart rot: Decay, typically caused by fungi, that is characteristically confined to the heartwood.

Heterocyclic: Fungi that requires two different hosts to complete their life cycle; i.e., some rust fungi.

Hibernacula: Shelters occupied during the winter by dormant insects, i.e., spruce budworm larvae overwinter in hibernacula.

Honeydew: Sugary liquid excretion of aphids or scale insects.

Host: A plant that is invaded by a parasite and from which the parasite obtains its nutrients.

Hypha: (plural=hyphae) a single branch of a mycelium.

I

Incipient decay: The early stage of decay in which degradation has not proceeded far enough to soften the wood or to cause a perceptible reduction in hardness. Such strength properties as toughness or impact strength are appreciably reduced in wood with incipient decay, but the damage is not normally visible to the naked eye.

Infection: The establishment of a parasite within a host plant.

Instar: The stage of an insect between successive molts.

L

Lanceolate: Spear-shaped, tapering at each end.

Larva: Immature form of an insect such as a caterpillar, grub, or maggot.

Lesion: A localized area of discolored, diseased tissue.

Latent infection: The state in which a host is infected with a pathogen but does not show any symptoms.

Life cycle: The stage or successive stages in the growth and development of an organism that occur between the appearance and reappearance of the same stage (e.g., spore) of the organism.

M

Metamorphosis: Change in form and structure between different life stages of insects. Some insects have incomplete metamorphosis (egg, nymph, adult), while others have complete metamorphosis (egg, larva, pupa, adult).

Midge: Tiny two-winged fly.

Molt: Process of shedding the exoskeleton, the insect “skin.”

Monogamous: Mating with only one individual.

Mushroom: Fleshy fruiting body of a fungus that has either gills or pores.

Mycangia: Structure found on some insects used for the transportation of symbiotic fungi from one host to another.

Mycelium: (hyphae) The vegetative feeding structure of a fungus.

Mycelial fan: a fan-shaped mycelial mat forming under the bark and wood of roots or lower trunks; associated with *Armillaria* spp.

Mychorrhizae: Association between plant rootlets and specialized fungi that is beneficial to their tree associate by assisting in nutrient and water uptake.

N

Necrotic: Dead plant cells or tissues.

Nuptial chamber: Mating site.

Nymph: Immature form of an insect resembling the adult, except for incomplete wing development.

O

Obligate parasite: An organism capable of existing only as a parasite on a live host.

Overwinter: Term used to describe what life stage an insect passes the winter in.

Oviposit: Lay or deposit eggs.

Ovipositor: Egg-laying apparatus.

P

Parasite: An organism living in or on another living organism (host) and obtaining its food from the latter. May be harmful (i.e., pathogen) or beneficial (e.g., mycorrhizae).

Parthenogenetic: Reproducing by eggs that develop without being fertilized.

Pathogen: An organism or virus capable of causing disease on a host. Many pathogens of forest trees are fungi.

Perennial: Lasting for several years or more.

Pheromone: Chemicals produced by one individual to affect or alter the behavior of another individual of the same species. Many bark beetle species produce both aggregation and anti-aggregation pheromones, which mediate the colonizing behavior of other beetles.

Phloem: Vascular tissue that conducts synthesized foods through the plant, located adjacent to the outside of the cambium in trees, essentially the inner bark.

Pitch-tubes: A tubular mass of resin mixed with bark, wood borings, and insect excrement that form on the surface of the bark at beetle entrance holes.

Plumed: Feather-like.

Polygamous: Mating with several individuals.

Pronotum: The dorsal plate of the prothorax.

Proleg: A fleshy leg that occurs on the abdominal segment of some insect larvae but not in the adult.

Prothorax: The anterior of the three thoracic segments.

Punk knot: An overgrown knot filled with old conk material or the beginning of a new conk, also called blind conk, reliable indicator of the presence of some wood decay fungi, i.e., *Phellinus pini*.

Pupa: Inactive stage of an insect, a transitional stage from larva to adult.

R

Radial growth: One-half the diameter growth of a tree.

Resinosis: Pitch or resin flow of a host tree in response to disease.

Rhizomorph: A specialized form of mycelium produced by certain fungi (e.g. *Armillaria* spp.) consisting of several strands of hyphae twisted together so as to be rootlike, and covered with a protective sheath.

Rot: Decay or deterioration of organic material through the enzymatic activity of microorganisms.

Rust: A disease caused by one of the rust fungi; highly specialized pathogens that are obligate parasites, which frequently require two different types of hosts to complete their life cycles (heterocyclic), and produce orange, yellow, or brown spores.

S

Saprophyte: An organism living in and getting its food from dead organic material.

Sapwood: Outer region of xylem of tree trunks, containing some living cells and functioning in water conduction, food storage and mechanical support.

Scales: A small thin, plate-like structure found on the wings of Lepidoptera.

Serrate: Saw-toothed edge.

Shootborer: Insects that feed in the pith of shoots.

Sign: The pathogen or its parts or products seen on a host plant.

Slash: Debris such as logs, bark, and branches left after cutting timber.

Spore: The reproductive unit of fungi consisting of one or more cells, analogous to the seed of green plants.

Sporophore: Fruiting body of a fungus that produces spores (i.e., mushroom or conk).

Stage: A distinguishable period of growth and development of an insect, i.e., the larval stage of an insect.

Stomata: Breathing pore in the epidermis (outer layer) of a plant.

Subcortical: Below the bark.

Sunscald: Death of bark due to sudden exposure to sun. This is common in mature aspen where neighboring trees have been removed.

Symbiotic: An intimate association between two species, which benefits both.

Symptom: The external and internal reactions or alterations of a plant as a result of a disease or insect.

Systemic: Throughout the plant host tissues, usually surviving from year to year.

T

Target canker: Perennial canker produced by a fungus which invades live tissue during the host dormant season, and survives in dead material during the host growing season.

Terminal growth: Height growth of a tree.

Terpenes: Unsaturated hydrocarbons occurring in plant oils and resins, common in conifers.

Thorax: The body region of an insect behind the head, which bears the legs and wings.

V

Vector: An organism such as an insect that transmits a pathogen.

W

White rot: White to tan decayed wood, caused by fungi decomposing both lignin and cellulose; may occur in areas surrounded by sound wood. Decayed wood is often fibrous or spongy in texture, and may contain distinctive pockets. In advanced stage, may create a large hollow in a tree.

Windthrown: Trees uprooted by wind. The term is also sometimes applied to trees whose stems are snapped by the wind.

Witches' brooms: Abnormal proliferations of shoots or branches caused by a pathogen (e.g., from dwarf mistletoe).

Woodborer: Diverse group of insects that feed at least in part in the wood. Many of these insects begin their larval stage in the cambium before constructing galleries in the xylem (wood).

X

Xylem: Vascular tissue that conducts water and mineral salts, taken in by roots, throughout the plant, essentially the woody part of the stem or trunk.

Z

Zone line: Narrow black to brown lines in decaying wood formed by fungi.