

Forest Health

1. Each competing member club shall enter two (2) contestants who work as a team and may communicate during the contest.
1. Forest health is the study of damaging agents to forest and wildland trees and stands. Damaging agents can include pathogens that cause disease, abiotic factors, and insect pests that can vector pathogens or directly kill individual trees or spots (clusters of trees in a stand). This event focuses only on pathogens and insect pests.
2. The event may include foliage-feeding insects, bark beetles, phloem borers, wood borers, insects that cause symptoms to: (terminals, shoots, twigs, roots, seeds, cones, flowers, or fruits), sapsucking insects, mites, gall makers, insects that cause damage to forest products, other important forest insects, root diseases, butt diseases, foliage diseases, stem rusts, cone rusts, broom rusts, wood decays, cankers, declines, diebacks, wilts, and parasitic plants.
3. The event will include 20 insect-related and/or pathogen-disease-related specimens.
4. Either the common name or the scientific binomial (genus and specific epithet) is required, but not both for the same specimen. The contest will specify which name is required for each specimen.
5. Common and scientific names found in the enclosed list for the event must be used. Multiple common or scientific designations (synonyms) may exist but only listed names will earn credit.
6. Half credit is given for any misspelling. Whether or not a species or disease name is wrong or merely misspelled shall be determined by the judges. The genus and specific epithet must be underlined to be considered correctly spelled. Capitalization counts for spelling.
7. Each specimen will be worth five (5) points, with four (4) points possible for the specimen's name and one (1) point possible for correctly assigning a damaging sign or symptom for pathogens or a feeding category for insects.
8. Each team will have three (3) minutes to jointly evaluate each specimen.
9. Distribution and host are important attributes where forest health issues exist but are not considered for this event with one exception. If two organisms occur on the list and are only distinguishable by the additional attributes, then it must be specified (e.g. location of the collection).
10. More than one species may be responsible for a disease or a symptom; however, it is the contestants' responsibility to know which are on the list for the contest. Alternative answers are not acceptable even if technically correct.

11. All specimens used in the contest will come from the enclosed lists. The lists must include damaging signs or symptoms for pathogens and feeding categories for insects.
12. Specimens may consist of preserved specimens, mounted specimens, high-quality photographs, wood, cankers, galls, galleries, or other symptomatic plant tissues. Plant specimens may consist of fresh material, herbarium sheets, Riker mounts, or high-quality photographs.
13. In case of a tie in the top three places, the contest will continue between tying teams until one is eliminated.
14. If a species name occurs on dendrology, forest health, wildlife, or wood identification lists, they will all have the same common name.
15. The list for the Forest Health Event is located in the Appendix. It should be provided by the host club to all schools by January 1.

Suggestions for Judge's Committee Forest Health

1. Prior to the contest gather all contestants at least 30 minutes before the event is scheduled to start; record the contestants' names at this time (Please print clearly).
2. Read the rules to the contestants. Settle any questions or problems now if at all possible.
3. Ask all contestants if they have any objections to the forest health list.
4. Run the contest in the fashion that best suits you. Try to complete it as quickly as possible.
5. Grading of test sheets will not be done while contestants are present. Therefore, to avoid having to locate tied contestants, provide the contestants with 3 to 5 additional specimens. Check for ties in first, second, and third places. Only these three places must be resolved by runoff. Use the first specimen to separate the tie. If a tie still exists after the first tie-breaker specimen, use the second one; hopefully, 3 to 5 tie-breaker specimens will suffice.
6. Be sure to have the head judge sign the score sheet and indicate the time that the event ended.
7. Be sure to turn in the completed score sheet to the head scorekeeper.

DO NOT ANNOUNCE NAMES OF WINNERS TO ANYONE!!!

2025 Forest Health List

Important definitions

- *Aeciospores*— one of the many types of spores that can be produced by rust fungi
- *Cankers*— depressions of plant tissues often described from stems and twigs that may develop woody tissue callus and swelling at the margins and bark loss over the surface. Some cankers may develop over several years and result in a target-shaped appearance
- *Chlamydospores*— thick-walled, long-lasting asexual spores
- *Conks*— shelf-like fruiting bodies of basidiomycete polypore fungi that cause wood rot
- *Defoliators*— organisms that feed on or remove leafy material
- *Fruiting bodies*— are complex structures produced by fungi, made of mycelium, organized into distinguishable structures that serve to house and produce dispersal propagules (spores)
- *Galls*— tumor-like growths resulting from the rapid splitting and proliferation of plant cells, which may be triggered by insects, pathogens, or environmental factors
- *Forma specialis*— abbreviated f. sp., is Latin for special form, which refers to a particular race of a fungal species that may behave differently from other races and/or have a different host range. For example, fusiform rust is a particular race of eastern gall rust that is more likely to have spindle-shaped than globose-shaped galls and more likely to affect loblolly and slash pine than Virginia, spruce, sand, or shortleaf pine.
- *Necrosis*— premature death of plant tissue, usually leaves and twigs, that can result in darkening of the tissue, wilting and sagging, and is generally localized. Less localized necrosis is referred to as blight
- *Oogonia*—sexually produced thick-walled spores of primitive fungi in the Kingdom Chromista
- *Pressure pads*— localized bark areas detached from the inner phloem due to the presence of fungal mats growing beneath
- *Primitive fungi*— informal term for fungi with simple structure (i.e., do not form complex fruiting bodies composed of layers of multi-morphic hyphae). Cannot be viewed with the naked eye in the field. Only are capable of breaking down simple short-chain carbon structures such as sugars, leading to plant disease with the notable absence of true wood rot (breakdown of cellulose and/or lignin). Usually, this refers to fungi outside the Kingdom Fungi in the Kingdom Chromista but can also refer to chytrids.
- *Pycnidia*— asexual flask shaped fruiting bodies of a fungus
- *Rhizomorphs*— sclerotized clustered threads of mycelium used to rapidly transport mainly water and minerals, as short-range dispersal, and as new host infection means.
- *Signs*— physical manifestation of the damaging agent (e.g. the pathogen)
- *Spiniger state*— informal name for the mitosporic stage of Heterobasidion species used in identification but not important in dispersal. Can occur on damp cut stumps of infected trees
- *Sporangia*— sac-like structures produced by primitive fungi in which slapdash asexual spores are produced by cytoplasmic cleaving
- *Symptoms*— visible host damages or reactions to disease
- *Vascular streaking*— longitudinal discoloration of the sap wood
- *Witches brooms*—Growth defect of leaves, twigs, stems or roots that results in dense bunches of material.

2025 Disease & Pathogen List

<u>Foliage</u>		
bacterial leaf scorch	<u>Xylella fastidiosa</u>	dried leaves; bacterial streaming
brown spot needle blight	<u>Lecanosticta acicola</u>	dead needle tips, brown spots with yellow halos
dogwood anthracnose	<u>Discula destructiva</u>	necrotic leaves; fruiting bodies with sticky spores
needle cast	<u>Lophodermium</u> sp.	dead needle tips; eye-shaped fruiting bodies
<u>Mistletoe</u>		
western dwarf mistletoe	<u>Arceuthobium campylopodum</u>	witches brooms, branch swellings; haustoria, leafless plant, viscin
leafy mistletoe	<u>Phoradendron leucarpum</u>	branch swellings, breakage; winter mistletoe tree, berries, leafy plant
<u>Rust</u>		
fusiform rust	<u>Cronartium quercuum</u> f. sp. <u>fusiforme</u>	galls, spindle cankers; aeciospores
pine needle rust	<u>Coleosporium</u> sp.	orange 'tongues' on needles
<u>Stem</u>		
bleeding canker	<u>Phytophthora cactorum</u>	sweet smell, wet bark, dieback, chlamydospores, oogonia
bot canker	<u>Botryosphaeria</u> sp.	canker, dieback; black pycnidia
hypoxylon canker on oak	<u>Biscogniauxia atropunctata</u>	canopy dieback, white rot, stem canker; coal-like fruiting bodies
laurel wilt	<u>Raffaelea lauricola</u>	vascular streaking
nectria canker	<u>Neonectria galligena</u>	target shaped cankers; orange fruiting bodies
oak wilt	<u>Bretziella fagacearum</u>	mid-summer defoliation; pressure pads
pitch canker	<u>Fusarium circinatum</u>	stem canker, vascular streaking
red heart	<u>Porodadalea pini</u>	punk knots, decay, conks
thousand cankers disease	<u>Geosmithia morbida</u>	dieback, many small cankers
wetwood, or slime flux	bacteria and yeast	sour smell, bark discoloration, wet bark
<u>Root</u>		
annosus root and butt rot	<u>Heterobasidion irregulare</u>	white rot; popcorn conks, spiniger state
brown cubical butt rot, dyer's polypore, cowpie fungus	<u>Phaeolus schweinitzii</u>	brown rot; compound tiered to singular, circular to fan shaped yellowish to reddish-brown poroid mushrooms
littleleaf disease	<u>Phytophthora cinnamomi</u>	shortened needles; sporangia, chlamydospores
shoestring root rot, or humongous fungus	<u>Armillaria mellea</u>	white rot; mycelial fans, honey mushrooms, and rhizomorphs
loblolly pine decline, or bluestain	<u>Leptographium</u> sp.	wood discoloration, beetle damage, stunted needles
Artist's conk root rot	<u>Ganoderma</u> sp.	White rot, conks

2025 Insect List

<u>Feeding Category: Defoliators</u>	
walkingstick	<u>Diapheromera femorata</u>
cottonwood leaf beetle	<u>Chrysomela scripta</u>
eastern tent caterpillar	<u>Malacosoma americanum</u>
bagworm or bagworm moth	<u>Thyridopteryx ephemeraeformis</u>
forest tent caterpillar	<u>Malacosoma disstria</u>
gypsy moth or spongy moth	<u>Lymantria dispar</u>
pine colaspis beetle	<u>Colaspis pini</u>
redheaded pine sawfly	<u>Neodiprion lecontei</u>
Texas leafcutting ant	<u>Atta texana</u>
yellownecked caterpillar	<u>Datana ministra</u>

<u>Feeding Category: Buds & shoots</u>	
Nantucket pine tip moth or pine tip moth	<u>Rhyacionia frustrana</u>
spruce budworm	<u>Choristoneura fumiferana</u>
Pales weevil	<u>Hylobius pales</u>

<u>Feeding Category: Sucking</u>	
crapemyrtle bark scale	<u>Acanthococcus lagerstroemiae</u>
hemlock wooly adelgid	<u>Adelges tsugae</u>
pine needle scale	<u>Chionaspis pinifoliae</u>
spotted lanternfly	<u>Lycorma delicatula</u>

<u>Feeding Category: Twig</u>	
periodical cicada	<u>Magicicada cassinii</u>
twig girdler	<u>Oncideres cingulata</u>
twig pruner	<u>Anelaphus villosus</u>

<u>Feeding Category: Galls</u>	
cypress twig gall midge	<u>Taxodiomyia cupressiananassa</u>
gouty oak gall wasp	<u>Callirhytis quercuspunctata</u>
spongy oak apple gall wasp	<u>Amphibolips confluenta</u>

<u>Feeding Category: Bark boring</u>	
black turpentine beetle	<u>Dendroctonus terebrans</u>
southern pine beetle	<u>Dendroctonus frontalis</u>
southern pine engraver beetle	<u>Ips avulsus</u>

<u>Feeding Category: Wood boring</u>	
Asian longhorned beetle	<u>Anoplophora glabripennis</u>
carpenterworm	<u>Prionoxystus robiniae</u>
emerald ash borer	<u>Agrilus planipennis</u>
red oak borer	<u>Enaphalodes rufulus</u>
southern pine ambrosia beetle	<u>Platypus flavicornis</u>
southern pine sawyer	<u>Monochamus titillator</u>
white oak borer	<u>Goes tigrinus</u>

<u>Feeding Category: Root</u>	
cottonwood borer	<u>Plectrodera scalator</u>
Pales weevil	<u>Hylobius pales</u>