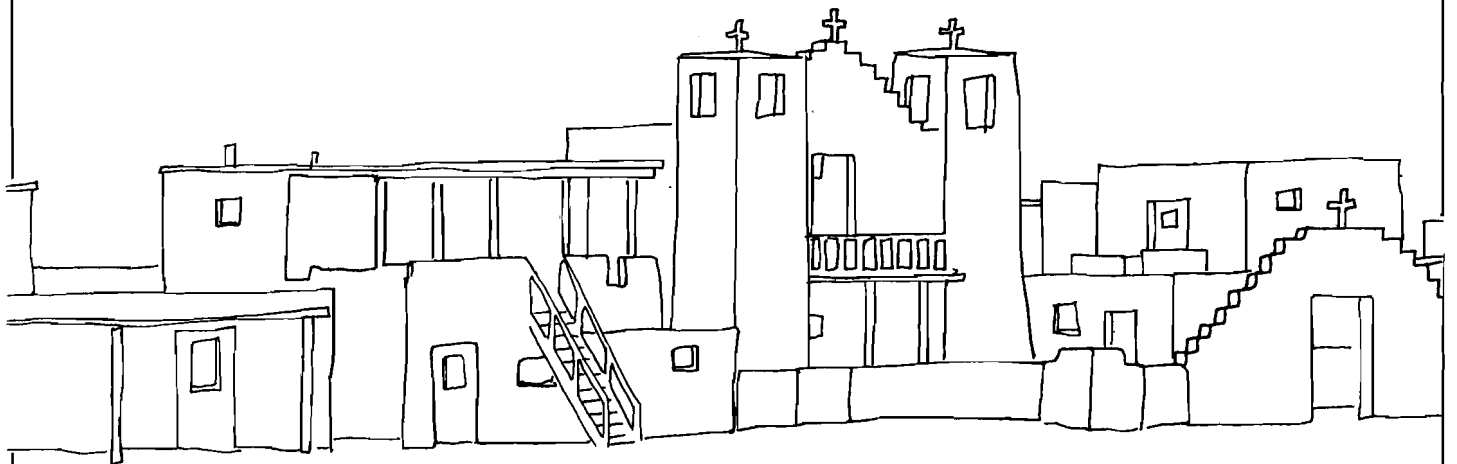


# COMMON NAMES FOR TREE DISEASES IN THE WESTERN UNITED STATES AND WESTERN CANADA



Supplement to the Proceedings of the  
32nd Annual Western International  
Forest Disease Work Conference

COMMON NAMES FOR TREE DISEASES  
IN THE WESTERN UNITED STATES AND WESTERN CANADA

FRANK G. HAWKSWORTH  
USDA Forest Service  
Rocky Mountain Forest and Range Experiment Station  
Fort Collins, Colorado 80526

ROBERT L. GILBERTSON  
Department of Plant Pathology  
University of Arizona, Tucson, Arizona 85721

and

GORDON W. WALLIS  
Pacific Forest Research Centre  
Victoria, B.C., Canada V8Z 1M5

Supplement to the Proceedings of the 32nd Annual Western International  
Forest Disease Work Conference. Taos, New Mexico, September 25-28, 1984.

JANUARY 1985

## INTRODUCTION

There has long been a need for a compendium of common names for tree diseases in the Western United States and Western Canada, so the authors were asked by the Chairman of the Western International Forest Disease Work Conference in 1982 to prepare such a list. This is the first attempt to compile a list of common names of western tree diseases, although some publications (see references) cite several names. Ziller's (1974) is the most comprehensive for a disease group, providing common names for all tree rusts in Western Canada.

In preparing this list, comments from members of the Western International Forest Disease Work Conference were solicited. The response was very good and, as was anticipated, there was considerable disagreement on appropriate common names for some diseases. In general, views of pathologists most familiar with the disease in question were relied upon. There were some suggestions that we develop a new systematic system of common names to help do away with the confusion and ambiguity that exists in the present hodgepodge of names. While this may be a worthwhile future endeavor, we feel that this was beyond the scope of our present assignment, which was to try to make some sense of existing common names and to suggest new ones as needed. In some cases, we have opted for widely-used common names because, although they may be misleading, they are well established. For example, "Western gall rust" is used for Endocronartium harknessii, although the fungus also occurs naturally in the Lake States and the Northeast.

The root diseases presented a particular problem because there was so much disagreement as to preferred names. Also, we did not resolve the question raised as to whether these should be referred to as "diseases" or "rots." One suggestion was to refer to organisms that primarily cause decay as "root rots," (e.g., "schweinitzii root rot"), while others that also cause mortality as "disease," (e.g., Armillaria root disease and annosus root disease). In general, this has been followed except we use "laminated root rot" as this is preferred by pathologists in the Pacific Northwest.

Some broad groups of forest disease organisms do not have common names and we do not offer them here. For example, "needlecast" can apply to any of several species in the Hypodermataceae. Perhaps, when specific organisms become well enough known or important, specific names may be appropriate (e.g., "Elytroderma disease"). Most of the diseases listed are caused by biotic agents (fungi, bacteria, mistletoes, or nematodes) but a few abiotic diseases are also included. The main emphasis is on forest trees but we have also included some common diseases of ornamental trees.

The geographic area covered is North America north of Mexico, and west of 100° west longitude.

We hope that this list will stimulate enough interest so that a standardized list of tree diseases for all of North America can eventually be prepared. The authors would appreciate any comments on the list because these will be helpful for revisions.

This compendium consists of two parts: An alphabetical listing of common names, with scientific equivalents, is given in Part I (page 2). Part II, starting on page 21, lists the scientific name of the disease or causal organism along with the suggested common name. We have not attempted to cite all synonyms but those frequently encountered in the forest pathology literature are included. Hosts are given in parentheses after the common name in Part I if the host is not obvious from the common name.

## PART I. COMMON NAMES

<u>Common Name of Disease or Organism</u>	<u>Scientific Name of Organism</u>
Acacia broom rust	<u>Ravenelia pringlei</u>
Adelopus needle cast (Douglas-fir)	See Swiss needle cast
Amelanchier rust	<u>Gymnosporangium harknessianum</u>
Amelanchier witches' broom	<u>Apiosporina collinsii</u>
American spruce-raspberry rust	<u>Pucciniastrum americanum</u>
Annosus root disease (conifers)	<u>Heterobasidion annosum</u>
Anthracnose (hardwoods)	<u>Gnomonia veneta</u>
Apache dwarf mistletoe (southwestern white pine)	<u>Arceuthobium apachecum</u>
Applanatus rot (hardwoods, conifers)	See white mottled rot
Arctic spruce-raspberry rust	<u>Pucciniastrum arcticum</u>
Arizona cypress rust	<u>Gymnosporangium cunninghamianum</u>
Armillaria root disease (conifers, hardwoods)	<u>Armillaria mellea</u> <sup>1</sup>
Artist's conk (hardwoods, conifers)	<u>Ganoderma applanatum</u>
Ash heart rot	<u>Perenniporia fraxinophila</u>
Aspen gall	<u>Diplodia tumefaciens</u>
Aspen trunk rot	<u>Phellinus tremulae</u>
Aster rust (pines)	See western pine-aster rust
Atropellis canker (hard pines)	<u>Atropellis piniphila</u>
Bacterial gall of Douglas-fir	See Douglas-fir bacterial gall
Bacterial wetwood (hardwoods)	<u>Erwinia nimipressuralis</u> or possibly other bacteria

<sup>1</sup>Recent studies have segregated several species in the Armillaria mellea complex. However, until the taxonomic status and hosts of these new taxa are clarified, continued use of "Armillaria root disease" for the entire complex is suggested.

Bark flaker disease (oaks)	<u>Aleurodiscus oakesii</u>
Bear wipe (conifers)	See brown felt blight
Bethel's juniper rust	<u>Gymnosporangium bethelii</u>
Bigleaf mistletoe (hardwoods)	<u>Phoradendron macrophyllum</u>
Big white pocket rot (conifers)	<u>Phellinus nigrolimitatus</u>
Birch rust	<u>Melampsorium betulinum</u>
Black canker (aspen)	<u>Ceratocystis fimbriata</u>
Black knot of cherry	<u>Apiosporina morbosa</u>
Black snow mold (conifers)	See brown felt blight
Black stain root disease (conifers)	<u>Ceratocystis wagneri</u>
Bleeding conk (conifers)	<u>Haematostereum sanguinolentum</u>
Bleeding sterium (conifers)	<u>Haematostereum sanguinolentum</u>
Blister rust (white pines)	See white pine blister rust
Blue brooms (conifers)	Non-pathogenic brooms occasional on Pacific Coast trees
Blue stain (conifers, hardwoods)	<u>Ceratocystis</u> spp., <u>Leptographium</u> spp., <u>Europhium</u> spp., <u>Graphium</u> spp.
Bluebell-pine needle rust	<u>Coleosporium campanulae</u>
Blumer's dwarf mistletoe (southwestern white pine)	<u>Arceuthobium blumeri</u>
Botryosphaeria canker of giant sequoia	<u>Botryosphaeria ribis</u>
Botryosphaeria canker of hemlock	<u>Botryosphaeria tsugae</u>
Botryosphaeria canker of spruce	<u>Botryosphaeria piceae</u>
Brick-red stain (conifers)	<u>Ascocybe grovesii</u>

Brown cedar poria (conifers)	See laminated root rot
Brown crumbly rot (conifers)	<u>Fomitopsis pinicola</u>
Brown cubical butt rot (conifers)	See schweinitzii butt rot
Brown cubical rot (conifers, hardwoods)	<u>Laetiporus sulphureus</u>
Brown felt blight (conifers)	<u>Neopeckia coulteri</u> and <u>Herpotrichia juniperi</u>
Brown-mottled white rot (conifers)	<u>Pholiota adiposa</u>
Brown pocket rot of cedar	<u>Tyromyces sericeomollis</u>
Brown pocket rot of cypress	<u>Tyromyces balsameus</u>
Brown pocket rot of incense-cedar	<u>Tyromyces amarus</u>
Brown pocket rot of Sitka spruce	<u>Lentinus kauffmanii</u>
Brown spot needle blight (pines)	<u>Scirrhia acicola</u>
Brown stringy rot (conifers)	See rust-red stringy rot
Brown top rot (conifers)	<u>Fomitopsis rosea</u>
Brown trunk rot (conifers)	<u>Fomitopsis officinalis</u>
Brown trunk rot of juniper	<u>Daedalea juniperina</u>
Buboes canker (aspen)	Cause unknown
Butt and root rot of white fir	<u>Inonotus dryadeus</u>
Butt and root rot of southwestern white pine	<u>Phellinus torulosus</u>
Butterfly conk (conifers)	See red ring rot
Caliciopsis canker (pines)	<u>Caliciopsis pinea</u>
Cambial necrosis (conifer seedlings)	<u>Phytophthora</u> spp.

Canker rot of oak	<u>Inonotus hispidus</u>
Cedar-apple rust (junipers)	<u>Gymnosporangium juniperi-virginianae</u>
Cedar blight (junipers)	See Phomopsis blight
Cedar leaf blight (junipers)	<u>Didymascella thujina</u>
Cenangium canker (aspen)	See sooty-bark canker
Ceratocystis canker (aspen)	See black canker
Cercospora blight of juniper	<u>Cercospora sequoiae</u>
Chalky fungus (conifers)	See brown trunk rot
Charcoal root disease (conifer seedlings)	<u>Macrophomina phaseolina</u>
Cherry leaf rust	See plum rust
Chicken-of-the-woods (conifers, hardwoods)	See brown cubical rot
Chihuahua pine dwarf mistletoe	<u>Arceuthobium gillii</u>
Chokecherry shot-hole	<u>Coccomyces hiemalis</u>
Christmas tree blight (Douglas-fir)	See Douglas-fir needlecast
Circinatus root rot (conifers)	<u>Inonotus circinatus</u>
Clavariform juniper rust	<u>Gymnosporangium clavariiforme</u>
Coal fungus (hardwoods)	<u>Ustulina vulgaris</u>
Coastal gall rust (pines)	See western gall rust
Coastal spruce cone rust (pines)	<u>Chrysomyxa monesis</u>
Comandra blister rust (pines)	<u>Cronartium comandrae</u>
Common fir-bracken rust	<u>Uredinopsis pteridis</u>

Cone rust (Chihuahua pine)	See Southwestern cone rust
Conifer-aspen rust (Douglas-fir)	<u>Melampsora medusae</u>
Conifer-cottonwood rust (Douglas-fir)	<u>Melampsora occidentalis</u>
Conk rot (conifers)	See red ring rot
Coprinus butt rot of aspen	<u>Coprinus atramentarius</u>
Cork-bark of aspen	<u>Rhytidiella baranyayi</u>
Cork-bark of fir	<u>Dermea rhytidiformans</u>
Corky root disease (conifer seedlings)	<u>Xiphinema bakeri</u>
Coronado limb rust (pines)	<u>Cronartium arizonicum</u>
Cortical root rot (conifers)	See Fusarium root disease
Cortical stem rot (conifers)	<u>Fusarium avenaceum</u>
Coryneum canker (cypress)	See cypress canker
Crown gall (hardwoods)	<u>Agrobacterium tumefaciens</u>
Crumbly brown cubical rot (conifers)	See brown crumbly rot
Cryptosphaeria canker (aspen)	<u>Cryptosphaeria populina</u>
Curcubidothis canker (conifers)	<u>Curcubidothis pithyophila</u>
Cypress canker (conifers)	<u>Seiridium cardinale</u>
Cypress mistletoe	See dense mistletoe
Cytospora canker (hardwoods)	<u>Valsa sordida</u>
Cytospora canker of true firs	<u>Valsa abietis</u>



Damping off (conifer seedlings)	<u>Pythium</u> spp., <u>Fusarium</u> spp., <u>Rhizoctonia solani</u>
Delphinella tip blight (conifers)	<u>Delphinella balsameae</u>
Dense mistletoe (junipers and cypress)	<u>Phoradendron densum</u>
Dermea canker (Douglas-fir)	<u>Dermea pseudotsugae</u>
Desert mistletoe (legumes)	<u>Phoradendron californicum</u>
Desert trunk rot (junipers and hardwoods)	<u>Phellinus texanus</u>
Dichomera bud necrosis (conifers)	<u>Dichomera gemmicola</u>
Digger pine dwarf mistletoe	<u>Arceuthobium occidentale</u>
Dime canker (Douglas-fir)	<u>Durandiella pseudotsugae</u>
Diplodia blight (pines)	<u>Sphaeropsis sapinera</u>
Discocainia canker (cankers)	<u>Discocainia treleasei</u>
Dothichiza canker of pines	<u>Dothichiza pithyophila</u>
Dothistroma needle blight (pines)	<u>Scirrhia pini</u>
Douglas-fir dwarf mistletoe	<u>Arceuthobium douglasii</u>
Douglas-fir bacterial gall	<u>Agrobacterium pseudotsugae</u> <sup>2</sup>
Douglas-fir mottled leafcast	See Douglas-fir needlecast
Douglas-fir needlecast	<u>Rhabdocline pseudotsugae</u> and <u>Rhabdocline weirii</u>
Douglas-fir rust	See conifer-aspen rust
Droopy aspen	Cause unknown

---

<sup>2</sup>There is some question as to the causal agent for this common bacterial gall, perhaps there are two types of different etiology. Current research at the University of British Columbia should clarify this situation.

Dry pocket rot (incense-cedar)	See brown pocket rot of incense-cedar
Dutch elm disease	<u>Ceratocystis ulmi</u>
Dwarf mistletoe (conifers)	<u>Arceuthobium</u> spp.
Elytroderma disease (pines)	<u>Elytroderma deformans</u>
Empetrum-spruce needle rust	See spruce crowberry rust
European mistletoe (hardwoods)	<u>Viscum album</u>
False tinder fungus (aspen)	<u>Phellinus tremulae</u>
Feather rot (conifers)	See yellow root rot
Fibrous yellow heartrot (conifers)	See brown stringy rot
Filamentosum rust (pines)	See limb rust
Fir-blueberry rust	<u>Pucciniastrum geoppertianum</u>
Fir broom rust	<u>Melampsorella caryophyllacearum</u>
Fir-fireweed rust	<u>Pucciniastrum epilobii</u>
Fir hydnum	See yellow pitted rot
Fir-lady-fern rust	<u>Uredinopsis longimucronata</u>
Fir mistletoe	See white fir mistletoe
Fir-ostrich-fern rust	<u>Uredinopsis struthiopteridis</u>
Fir-polypody rust	<u>Milesina laeviuscula</u>
Fir rust broom	See fir broom rust
Fir-willow-herb rust	<u>Pucciniastrum pustulatum</u>
Fir-willow-weed rust	See fir-fireweed rust
Fir witches' broom	See fir broom rust
Fireblight (rosaceous trees)	<u>Erwinia amylovora</u>

Fireweed rust (true firs)	See fir-fireweed rust
Flammulina trunk rot of aspen	<u>Flammulina velutipes</u>
Fomes root rot (conifers)	See annosus root disease
Fomes trunk rot of birch	<u>Fomes fomentarius</u>
Fragile-fern rust (true firs)	<u>Hyalopsora polypodii</u>
Fusarium root disease (conifers)	<u>Fusarium oxysporum</u>
Gaeumann's juniper rust	<u>Gymnosporangium gaeumannii</u>
Ganoderma rot of conifers	<u>Ganoderma tsugae</u>
Ganoderma rot of hardwoods	<u>Ganoderma lucidum</u>
Glomerella blight of willow	<u>Glomerella cingulata</u>
Globose gall rust (pines)	See Western gall rust
Gray-brown saprot (conifers)	<u>Cryptoporus volvatus</u>
Gray mold (conifers)	<u>botrytis cinerea</u>
Gray mold blight (conifers)	See gray mold
Green stain of slash (conifers, hardwoods)	<u>Chlorociboria aeruginascens</u>
Grovesiella canker (true firs)	<u>Grovesiella abieticola</u>
Gummosis of Russian olive	See Phytophthora canker
Hackberry witches' broom	<u>Sphaerotheca phytophila</u> <sup>3</sup>
Hairy juniper mistletoe	<u>Phoradendron capitellatum</u>
Hardwood trunk rot	<u>Phellinus igniarius</u>
Hashioka's fir-bracken rust	<u>Uredinopsis hashiokai</u>

<sup>3</sup> Hackberry witches' broom is associated with this powdery mildew and a gall-mite (Eriophyes).

Hawthorn-juniper rust	<u>Gymnosporangium confusum</u>
Hawthorn trunk rot	<u>Phellinus occidentalis</u>
Hemlock-blueberry rust	<u>Pucciniastrum vaccinii</u>
Hemlock canker	<u>Acremonium tsugae</u>
Hemlock dwarf mistletoe	<u>Arceuthobium tsugense</u>
Honey fungus (conifers)	See Armillaria root disease
Hypoxylon canker (aspen)	<u>Hypoxylon mammatum</u>
Incense-cedar mistletoe	<u>Phoradendron juniperinum</u> subsp. <u>libocedri</u>
Incense-cedar rust	<u>Gymnosporangium libocedri</u>
Inconspicuous juniper rust	<u>Gymnosporangium inconspicuum</u>
Indian paint fungus (conifers)	See rust red stringy rot
Ink spot (aspen)	<u>Ciborinia whetzellii</u>
Inland spruce cone rust	<u>Chrysomyxa pirolata</u>
Inonotus trunk rot of oak	<u>Inonotus dryophilus</u>
Inonotus trunk rot of mesquite and acacia	<u>Inonotus texanus</u>
Inyo peridermium (pines)	See limb rust
Juniper broom rust	<u>Gymnosporangium nidus-avis</u>
Juniper heart rot	See juniper pocket rot
Juniper mistletoe	<u>Phoradendron juniperinum</u> subsp. <u>juniperinum</u>
Juniper pocket rot	<u>Pyrofomes demidoffii</u>
Juniper true mistletoe	See juniper mistletoe
Kabatina blight (junipers)	<u>Kabatina juniperi</u>
Kern's broom rust (junipers)	<u>Gymnosporangium kernianum</u>

Laminated root rot (conifers)	<u>Phellinus</u> <u>weirii</u>
Larch dwarf mistletoe	<u>Arceuthobium</u> <u>laricis</u>
Larch needle blight	<u>Hypodermella</u> <u>laricis</u>
Larch needlecast	<u>Meria</u> <u>laricis</u>
Larch shoot blight	<u>Encoeliopsis</u> <u>laricina</u>
Larch-willow rust	<u>Melampsora</u> <u>paradoxa</u>
Large-spored spruce-ledum rust	<u>Chrysomyxa</u> <u>ledicola</u>
Leafy mistletoe (hardwoods, conifers)	See mistletoe ( <u>Phoradendron</u> spp.)
Lentinus butt rot (conifers)	<u>Lentinus</u> <u>lepideus</u>
Light brown cubical rot (conifers)	See brown top rot
Limb rust <sup>4</sup> (pines)	<u>Peridermium</u> <u>filamentosum</u>
Limber pine dwarf mistletoe	<u>Arceuthobium</u> <u>cyanocarpum</u>
Little red ring rot (conifers)	See white pocket trunk rot
Lodgepole pine dwarf mistletoe	<u>Arceuthobium</u> <u>americanum</u>
Long pitted rot (conifers)	See yellow pitted rot
Long pocket rot (conifers)	See yellow pitted rot
Long-spored rhododendron rust	<u>Chrysomyxa</u> <u>piperiana</u>
Maple leaf spot	<u>Septoria</u> <u>aceris</u>
Marssonina blight (aspen)	<u>Marssonina</u> <u>populi</u>
Meria needlecast	See larch needlecast

<sup>4</sup>"Limb rust" has been applied to at least three pine rusts: (1) a systemic form of Peridermium stalactiforme in California ("stalactiform limb rust" or "Inyo Peridermium"), (2) a Castilleja-infecting species, Cronartium arizonicum, in Nevada, Utah, Colorado and Arizona ("Coronado limb rust"), and (3) an autoecious race of P. filamentosum from Arizona to South Dakota ("Powell Peridermium"). (Peterson 1968).

Mesquite and acacia trunk rot	<u>Phellinus badius</u>
Mesquite mistletoe	<u>Phoradendron tomentosum</u>
Mistletoe blister rust (lodgepole pine)	<u>Peridermium bethelii</u>
Mountain-ash-juniper rust	<u>Gymnosporangium cornutum</u>
Multipored juniper rust	<u>Gymnosporangium multiporum</u>
Naemacyclus needlecast (conifers)	<u>Naemacyclus minor</u>
Needlecast (conifers)	Hypodermataceae-- <u>Bifusella</u> spp; <u>Davisomycella</u> spp.; <u>Hypodermella</u> spp.; <u>Lirula</u> spp.; <u>Lophodermium</u> spp.
Needle tip dieback (spruce seedlings)	<u>Alternaria</u> spp.
Nectria canker (hardwoods)	<u>Nectria galligena</u>
Nelson's gall rust (junipers)	<u>Gymnosporangium nelsonii</u>
Oak mistletoe	<u>Phoradendron villosum</u>
Oak witches' broom	<u>Articularia quercina</u>
Oak root fungus	See Armillaria root disease
Orange gall rust (junipers)	<u>Gymnosporangium speciosum</u>
Orange-spored fir-oak fern rust	<u>Hyalopsora aspidiotus</u>
Orange stalactiform blister rust (pines)	<u>Cronartium coleosporioides</u> f. <u>coleosporioides</u>
Oyster mushroom rot (hardwoods)	<u>Pleurotus ostreatus</u>
Ozone damage (general)	Ozone
Paper rot (conifers)	See laminated root rot
Pear juniper rust	See pear trellis rust
Pear trellis rust (junipers)	<u>Gymnosporangium fuscum</u>

Pecky cedar (incense-cedar)	See brown pocket rot of incense cedar
Pencil rot (incense cedar)	See brown pocket rot of incense cedar
Phacidiella canker (conifers)	<u>Potebniamyces coniferarum</u>
Phacidium blight (conifers)	See snow blight
Phellinus root rot (conifers)	See laminated root rot
Pholiota butt and root rot of aspen	<u>Pholiota squarrosa</u>
Phomopsis blight (junipers)	<u>Phomopsis juniperovora</u>
Phomopsis canker of Douglas fir	<u>Diaporthe lokoyae</u>
Phytophthora canker (hardwoods)	<u>Phytophthora cactorum</u>
Phytophthora root rot (conifers, hardwoods)	<u>Phytophthora cinnamomi</u>
Picture conk (hardwoods, conifers)	See white mottled rot
Pine cone-oak rust	See Southwestern cone rust
Pine needle rust	<u>Coleosporium</u> spp.
Pine root fungus	See annosus root disease
Pine-tarweed rust	<u>Coleosporium pacificum</u>
Pine-to-pine rust	See Western gall rust
Pine twig canker	<u>Atropellis pinicola</u>
Pine wilt nematode	See pine wood nematode
Pine wood nematode	<u>Bursaphelenchus xylophilus</u>
Pinyon blister rust	<u>Cronartium occidentale</u>
Pinyon dwarf mistletoe	<u>Arceuthobium divaricatum</u>
Piped rot (oak)	See Inonotus trunk rot of oak
Pitted sap-rot (conifers)	<u>Trichaptum abietinum</u>

Plum pocket	<u>Taphrina communis</u>
Plum rust	<u>Tranzschelia pruni-spinosae</u>
Pocket dry rot (incense-cedar)	See brown pocket rot of incense-cedar
Pole blight (western white pine)	Cause unknown, probably environmental
Port Orford-cedar root disease	<u>Phytophthora lateralis</u>
Pouch fungus (conifers)	<u>Cryptoporus volvatus</u>
Powdery mildew (hardwoods)	<u>Erysiphe</u> spp., <u>Microsphaera</u> spp., <u>Phyllactinia</u> spp., <u>Sphaerotheca</u> spp., <u>Uncinula</u> spp., <u>Podosphaera</u> spp.
Powell Peridermium (pines)	See limb rust
Prunus leaf rust	See plum rust
Pyrola-spruce cone rust	See inland spruce cone rust
Pythium root disease (conifers)	<u>Pythium ultimum</u> and <u>Pythium</u> <u>aphanidermatum</u>
Quinine conk (conifers)	See brown trunk rot
Quince rust	<u>Gymnosporangium clavipes</u>
Red band needle blight (pines)	See Dothistroma needle blight
Red belt (conifers)	Winter drying
Red belt fungus (conifers)	See brown crumbly rot
Red-brown butt rot (conifers)	See schweintzii butt rot
Red-brown heartrot (conifers)	See brown trunkrot
Red-brown rot (conifers)	See circinatus root rot
Red-brown root and butt rot (conifers)	See red-brown butt rot



Red fir dwarf mistletoe	<u>Arceuthobium abietinum</u> f. sp. <u>magnificae</u>
Red flag disease (true firs)	<u>Potebniamyces balsamicola</u>
Red heart of lodgepole pine	<u>Peniophora pini</u>
Red heartrot (conifers)	<u>Haematostereum sanguinolentum</u>
Red-huckleberry rust	<u>Chrysomyxa ledi</u> var. <u>vaccinii</u>
Red ray rot (conifers)	See red rot
Red ring rot (conifers)	<u>Phellinus pini</u>
Red rot (conifers)	<u>Dichomitus squalens</u>
Red stain of boxelder	<u>Fusarium reticulatum</u> var. <u>negundinis</u>
Rhabdocline needlecast (Douglas-fir)	See Douglas-fir needlecast
Rhizina root disease (conifers)	<u>Rhizina undulata</u>
Ribes-willow rust	<u>Melampsora ribesii-purpureae</u>
Ring scale (conifers)	See red ring rot
Ring shake (conifers)	See red ring rot
Rio Grande mistletoe (hardwoods)	<u>Phoradendron cockerellii</u>
Robustus trunk rot of oak	<u>Phellinus robustus</u>
Root and butt rot of cottonwood	<u>Fomitopsis ulmaris</u>
Root lesion nematode	<u>Pratylenchus penetrans</u>
Rose-colored conk (conifers)	<u>Fomitopsis rosea</u>
Rose fomes rot (conifers)	<u>Fomitopsis cajanderi</u>
Rosellinia needle blight (conifers)	<u>Rosellinia herpotrichioides</u>

Rough-bark of aspen	<u>Cucurbitaria staphula</u>
Rust-red stringy rot (true firs, hemlock)	<u>Echinodontium tinctorium</u>
Saguaro root rot	<u>Poria carnegiea</u>
Scaly cap fungus (conifers)	See <u>Lentinus</u> butt rot
Schweinitzii butt rot (conifers)	<u>Phaeolus schweinitzii</u>
Scleroderris canker (pines)	<u>Gremmeniella abietina</u>
Septoria leaf spot and canker (cottonwood, aspen)	<u>Mycosphaerella populorum</u>
Serviceberry rust	See Kern's broom rust
Shepherd's crook (aspen)	<u>Venturia macularis</u>
Shoestring root disease (conifers, hardwoods)	See <u>Armillaria</u> root disease
Shore pine dwarf mistletoe	See hemlock dwarf mistletoe
Siberian elm canker	<u>Botryodiplodia hypodermia</u>
Silver leaf disease (hardwoods)	<u>Chondrostereum purpureum</u>
Sirococcus tip blight (conifers)	<u>Sirococcus strobilinus</u>
Slime flux (hardwoods)	See bacterial wetwood
Slimy rot (conifers)	<u>Laurilia sulcata</u>
Small-spored spruce-laborador tea rust	<u>Chrysomyxa ledi</u> var. <u>ledi</u>
Snow blight (conifers)	<u>Phacidium abietinum</u>
Sooty-bark canker (aspen)	<u>Encoelia pruinosa</u>
Sooty canker (hardwoods)	<u>Hendersonula toruloidea</u>
Southwestern cone rust (Chihuahua pine)	<u>Cronartium conigenum</u>

Southwestern dwarf mistletoe (ponderosa pine)	<u>Arceuthobium vaginatum</u> subsp. <u>cryptopodum</u>
Southwestern oak mistletoe	<u>Phoradendron coryae</u>
Sparassis root rot (conifers)	<u>Sparassis crispa</u>
Spongy root and butt rot (conifers)	See <i>Armillaria</i> root disease
Spruce-bearberry rust	<u>Pucciniastrum sparsum</u>
Spruce cytospora canker	<u>Leucostoma kunzei</u>
Spruce broom rust	<u>Chrysomyxa arctostaphyli</u>
Spruce-cassandra rust	<u>Chrysomyxa ledi</u> var. <u>cassandrae</u>
Spruce-crowberry rust	<u>Chrysomyxa empetri</u>
Spruce cytospora canker	<u>Leucostroma kunzei</u>
Spruce mottled needlecast	<u>Rhizosphaera kalkhoffii</u>
Spruce rust broom	See spruce broom rust
Spruce shoot rust	<u>Chrysomyxa woroninii</u>
Spruce witches' broom	See spruce broom rust
Stalactiform blister rust (pines)	<u>Cronartium coleosporioides</u>
Stalactiform limb rust (pines)	See limb rust
Sterile conk trunk rot of birch	<u>Inonotus obliquus</u>
Stringy root and butt rot (conifers)	See yellow root rot
Subalpine brown saprot (conifers)	<u>Tyromyces leucospongia</u>
Sugar pine dwarf mistletoe	<u>Arceuthobium californicum</u>
Sulfur fungus (conifers, hardwoods)	See brown cubical rot
Sweetfern blister rust (pines)	<u>Cronartium comptoniae</u>
Swiss needlecast (Douglas-fir)	<u>Phaeocryptopus gaumannii</u>

Sydowia tip dieback of pines	<u>Sclerophoma pithyophila</u>
Tar spots (hardwoods)	<u>Rhytisma</u> spp.
Tarweed rust (pines)	See pine-tarweed rust
Texas juniper mistletoe	<u>Phoradendron hawksworthii</u>
Texas root rot (hardwoods)	<u>Phymatotrichum omnivorum</u>
Therrya canker (spruce)	<u>Therrya piceae</u>
Thyronectria canker (honey locust)	<u>Thyronectria austro-americana</u>
Tinder fungus (birch)	<u>Fomes fomentarius</u>
Tomentosus root rot (conifers)	<u>Inonotus tomentosus</u>
True mistletoe (hardwoods, conifers)	See mistletoe ( <u>Phoradendron</u> spp.)
Tremelloid gall rust (junipers)	<u>Gymnosporangium tremelloides</u>
Trunk rot and canker of oak	<u>Inonotus andersonii</u>
Trunk rot of silver buffaloberry	<u>Perenniporia ellisiana</u>
Velvet top fungus (conifers)	See Schweinitzii butt rot
Veluticeps rot of ponderosa pine	<u>Veluticeps berkeleyi</u>
Venturia blight of cottonwood	<u>Venturia populina</u>
Venturia blight of willow	<u>Venturia saliciperda</u>
Verticillium wilt (hardwoods)	<u>Verticillium dahliae</u>
Walnut leaf spot and witches' broom	<u>Microstroma juglandis</u>
Weir's spruce cushion rust	<u>Chrysomyxa weirii</u>
Western dwarf mistletoe (ponderosa pine)	<u>Arceuthobium campylopodum</u>
Western gall rust (pines)	<u>Endocronartium harknessii</u>

Western hemlock dwarf mistletoe	See hemlock dwarf mistletoe
Western pine-aster rust	<u>Coleosporium asterum</u>
Western red rot (pines)	See red rot
Western spruce dwarf mistletoe	<u>Arceuthobium microcarpum</u>
White butt rot of spruce	<u>Climacocystis borealis</u>
White fir dwarf mistletoe	<u>Arceuthobium abietinum</u> f. sp. <u>concoloris</u>
White fir mistletoe	<u>Phoradendron bolleanum</u> subsp. <u>pauciflorum</u>
White laminated rot (conifers)	<u>Poria albipellucida</u>
White mottled rot (conifers, hardwoods)	<u>Ganoderma applanatum</u>
White pine blister rust	<u>Cronartium ribicola</u>
White pocket trunk rot (conifers)	<u>Phellinus chrysoloma</u>
White spongy rot (conifers)	See annosus root disease
White-spored fir oakfern rust	<u>Uredinopsis phegopteridis</u>
White-spored gall rust (pines)	See Western gall rust
White stalactiform blister rust (pines)	<u>Cronartium coleosporioides</u> f. <u>album</u>
White stringy rot (conifers)	See annosus root disease
White trunk rot (aspen)	See aspen trunk rot
White trunk rot of black locust	<u>Phellinus robiniae</u>
White trunk rot of juniper	<u>Poria rimosa</u>
White trunk rot of manzanita	<u>Phellinus arctostaphyli</u>
White trunk rot of oak	<u>Phellinus everhartii</u>
White trunk rot of sycamore	<u>Inonotus arizonicus</u>
White trunk rot of walnut	<u>Phellinus weirianus</u>

White trunk rot of willow and  
cottonwood

Willow canker

Yellow cap fungus  
(conifers)

Yellow cypress rust

Yellow laminated rot  
(conifers)

Yellow pitted rot  
(conifers)

Yellow ring rot  
(conifers)

Yellow root rot  
(conifers)

Yellow witches' broom  
(true firs, spruce)

Inonotus munzii

Godronia fuliginosa

Pholiota adiposa

Gymnosporangium nootkatense

See laminated root rot

Hericiium abietis

See laminated rot

Perenniporia subacida

See fir broom rust or spruce  
broom rust

## PART II. LATIN NAMES

<u>Scientific Name of Causal Agent</u> <sup>5</sup>	<u>Common Name of Disease</u>
<u>Acremonium tsugae</u> Gams	Hemlock canker
( <u>Adelopus gaeumannii</u> )	Swiss needlecast
<u>Agrobacterium pseudotsugae</u> (Hansen & R. E. Smith ) Savelescu (= <u>Phytomonas pseduotsugae</u> (Hansen & R. E. Smith) Burkholder) (= <u>Bacterium pseudotsugae</u> Hansen & R. E. Smith)	Douglas-fir bacterial gall
<u>Agrobacterium tumefaciens</u> (S.& T.) Conn. (= <u>Pseudomonas tumefaciens</u> (S.& T.) Dug.)	Crown gall
<u>Aleurodiscus oakesii</u> (Berk. & Curt.) Hoehn. & Litsch.	Bark flaker disease
<u>Alternaria</u> spp.	Needle tip dieback
<u>Apiosporina collinsii</u> (Schw.) Hoehn.	Amelanchier witches' broom
<u>Apiosporina morbosa</u> (Schw.) Arx (= <u>Dibotryon morbosum</u> (Schw.) Theiss. & Syd.)	Black knot of cherry
<u>Arceuthobium abietinum</u> Engelm. ex Munz f. sp. <u>concoloris</u> Hawksw. & Wiens	White fir dwarf mistletoe
<u>Arceuthobium abietinum</u> Engelm. ex Munz f. sp. <u>magnificae</u> Hawksw. & Wiens	Red fir dwarf mistletoe
<u>Arceuthobium americanum</u> Nutt. ex Engelm.	Lodgepole pine dwarf mistletoe
<u>Arceuthobium apachecum</u> Hawksw. & Wiens	Apache dwarf mistletoe
<u>Arceuthobium blumeri</u> A. Nels.	Blumer's dwarf mistletoe
<u>Arceuthobium californicum</u> Hawksw. & Wiens	Sugar pine dwarf mistletoe
<u>Arceuthobium campylopodum</u> Engelm.	Western dwarf mistletoe
<u>Arceuthobium cyanocarpum</u> Coult. & A. Nels.	Limber pine dwarf mistletoe
<u>Arceuthobium divaricatum</u> Engelm.	Pinyon dwarf mistletoe
<u>Arceuthobium douglasii</u> Engelm.	Douglas-fir dwarf mistletoe
<u>Arceuthobium gillii</u> Hawksw. & Wiens subsp. <u>gillii</u>	Chihuahua pine dwarf mistletoe

<sup>5</sup>Synonyms are in parentheses, anamorphs are in brackets.

<u>Arceuthobium laricis</u> (Piper) St. John	Larch dwarf mistletoe
<u>Arceuthobium microcarpum</u> (Engelm.) Hawksw. & Wiens	Western spruce dwarf mistletoe
<u>Arceuthobium occidentale</u> Engelm.	Digger pine dwarf mistletoe
<u>Arceuthobium tsugense</u> (Rosendahl) G.N. Jones	Hemlock dwarf mistletoe
<u>Arceuthobium vaginatum</u> (Willd.) Presl subsp. <u>cryptopodum</u> (Engelm.) Hawksw. & Wiens	Southwestern dwarf mistletoe
<u>Armillaria mellea</u> (Vahl.:Fr.) Quéf. (= <u>Armillariella mellea</u> (Vahl.:Fr.) Karst.)	Armillaria root disease
<u>Articularia quercina</u> (Pk.) Hoehn.	Oak witches' broom
<u>Ascocybe grovesii</u> Wells	Brick-red stain
<u>Atropellis pinicola</u> Zell. & Good.	Pine twig canker
<u>Atropellis piniphila</u> (Weir) Lohman & Cash	Atropellis canker
( <u>Bacterium pseudotsugae</u> )	Douglas-fir bacterial gall
<u>Bifusella</u> spp.	Needlecast
<u>Botryodiplodia hypodermia</u> (Sacc.) Petr. & Syd.	Siberian elm canker
<u>Botryosphaeria piceae</u> Funk	Botryosphaeria canker of spruce
<u>Botryosphaeria ribis</u> (Tod.:Fr.) Gross. & Dug.	Botryosphaeria canker of giant sequoia
<u>Botryosphaeria tsugae</u> Funk	Botryosphaeria canker of hemlock
<u>Botrytis cinerea</u> Pers.:Fr.	Gray mold
<u>Bursaphelenchus xylophilus</u> (Steiner & Buhrer) Nickle	Pine wood nematode
<u>Caliciopsis pinea</u> Pk.	Caliciopsis canker
( <u>Cenangium singulare</u> )	Sooty-bark canker
<u>Ceratocystis</u> spp.	Blue stain
<u>Ceratocystis fimbriata</u> Ell. & Halst. <sup>6</sup>	Black canker
<u>Ceratocystis ulmi</u> (Buism.) C. Mor.	Dutch elm disease

<sup>6</sup>Ceratocystis fimbriata f. sp. platani Walt. causes canker stain of sycamores in the eastern United States.



<u>Ceratocystis wagneri</u> (Kend.) Goheen & Cobb [ <u>Verticicladiella wagneri</u> Kend.]	Black stain root disease
<u>Cercospora sequoiae</u> Ell. & Ev.	Cercospora blight of juniper
<u>Chlorociboria aeruginascens</u> (Nyl.) Kanouse (= <u>Chlorosplenium aeruginosum</u> (Oed.) de Not.)	Green stain of slash
<u>Chondrostereum purpureum</u> (Pers.:Fr.) Pouz. (= <u>Stereum purpureum</u> (Pers.:Fr.) Fr.)	Silver leaf disease
<u>Chrysomyxa arctostaphyli</u> Diet. [= <u>Peridermium coloradense</u> (Diet.) Arth. & Kern]	Spruce broom rust
<u>Chrysomyxa ledi</u> de Bary var. <u>cassandrae</u> (Pk. & G.W. Clint.) Savile	Spruce-cassandra rust
<u>Chrysomyxa ledi</u> de Bary var. <u>ledi</u>	Small-spored spruce-laborador tea rust
<u>Chrysomyxa ledi</u> var. <u>vaccinii</u> Ziller	Red-huckleberry rust
<u>Chrysomyxa ledicola</u> Lagerh.	Large-spored spruce-laborador tea rust
<u>Chrysomyxa monesis</u> Ziller	Coastal spruce cone rust
<u>Chrysomyxa piperiana</u> Sacc. & Trott. ex Cumm.	Long-spored rhododendron rust
<u>Chrysomyxa pirolata</u> Wint.	Inland spruce cone rust
<u>Chrysomyxa weirii</u> Jacks.	Weir's spruce cushion rust
<u>Chrysomyxa woroninii</u> Tranz.	Spruce shoot rust
<u>Ciborinia whetzeli</u> (Seaver) Seaver (= <u>C. bifrons</u> (Whetz.) Whetz.)	Ink spot
<u>Climacocystis borealis</u> (Fr.) Kotl. & Pouz. (= <u>Polyporus borealis</u> Fr.)	White butt rot of spruce
<u>Coccomyces hiemalis</u> Higgins	Chokecherry shot-hole
<u>Coleosporium asterum</u> (Diet.) Syd.	Western pine-aster rust
<u>Coleosporium campanulae</u> (Pers.) Lev.	Bluebell-pine needle rust
<u>Coleosporium pacificum</u> Cumm.	Pine-tarweed rust
<u>Coleosporium</u> spp.	Pine needle rust
( <u>Colletotrichum gloeosporioides</u> )	Glomerella blight of willow
<u>Coprinus atramentarius</u> Bull.:Fr.	Coprinus butt rot of aspen
<u>Chrysomyxa empetri</u> Schroet. ex Cumm.	Spruce-crowberry rust

( <u>Coryneum cardinale</u> )	Cypress canker
<u>Cronartium arizonicum</u> Cumm.	Coronado limb rust
<u>Cronartium coleosporioides</u> Arth. [= <u>Peridermium stalactiforme</u> Arth. & Kern] (= <u>Cronartium stalactiforme</u> Arth. & Kern)	Stalactiform blister rust
<u>Cronartium coleosporioides</u> f. <u>album</u> Ziller	White stalactiform blister rust
<u>Cronartium coleosporioides</u> Arth. f. <u>coleosporioides</u>	Orange stalactiform blister rust
<u>Cronartium comandrae</u> Pk.	Comandra blister rust
<u>Cronartium comptoniae</u> Arth.	Sweetfern blister rust
<u>Cronartium conigenum</u> Hedgc. & Hunt	Southwestern cone rust
<u>Cronartium occidentale</u> Hedgc., Bethel & Hunt	Pinyon blister rust
<u>Cronartium ribicola</u> J. C. Fisch.	White pine blister rust
( <u>Cronartium stalactiforme</u> )	Stalactiform blister rust
<u>Cryptoporus volvatus</u> (Pk.) Shear (= <u>Polyporus volvatus</u> Pk.)	Gray-brown saprot
<u>Cryptosphaeria populina</u> (Pers.:Fr.) Sacc.	Cryptosphaeria canker
<u>Cucurbitodthis pithyophila</u> (Fr.) Petr.	Cucurbitodthis canker
<u>Cucurbitaria staphula</u> Dearn. ex Arnold & Russell	Rough-bark of aspen
[ <u>Cytospora abietis</u> ]	Cytospora canker of true firs
[ <u>Cytospora chrysosperma</u> ]	Cytospora canker
[ <u>Cytospora kunzei</u> ]	Spruce cytospora canker
<u>Daedalea juniperina</u> (Murr.) Murr.	Brown trunk rot of juniper
<u>Davisomycella</u> spp.	Needlecast
<u>Delphiniella balsamea</u> (Waterm.) Mueller	Delphiniella tip blight
<u>Dermea pseudotsugae</u> Funk	Dermea canker
<u>Dermea rhytidiformans</u> Funk & Kuijt	Cork-bark of fir
<u>Diaporthe lokoyae</u> Funk [= <u>Phomopsis lokoyae</u> Hahn]	Phomopsis canker of Douglas-fir
( <u>Dibotryon morbosum</u> )	Black knot of cherry
<u>Dichomera gemmicola</u> Funk & Sutton	Dichomera bud necrosis

<u>Dichomitus squalens</u> (Karst.) Reid (= <u>Polyporus anceps</u> Pk.)	Red rot
<u>Didymascella thujina</u> (Durand) Maire (= <u>Keithia thujina</u> Durand)	Cedar leaf blight
<u>Didymosphaeria oregonensis</u> Good. ( <u>Diplodia pinea</u> )	Rough bark of alder Diplodia blight
<u>Diplodia tumefaciens</u> (Shear) Zalasky (= <u>Macrophoma tumefaciens</u> Shear)	Aspen gall
<u>Discocainia treleasei</u> (Sacc.) J. Reid & Funk	Discocainia canker
<u>Dothichiza pithyophila</u> (Cda.) Petr. ( <u>Dothistroma pini</u> )	Dothichiza canker of pines Dothistroma needle blight
<u>Durandiella pseudotsugae</u> Funk	Dime canker
<u>Echinodontium tinctorium</u> (Ell. & Ev.) Ell. & Ev.	Rust-red stringy rot
<u>Elytroderma deformans</u> (Weir) Darker	Elytroderma disease
<u>Encoelia pruinosa</u> (Ell. & Ev.) Torkelson & Eckblad (= <u>Cenangium singulare</u> (Rehm.) Davidson & Cash)	Sooty-bark canker
<u>Encoeliopsis laricina</u> (Ettl.) Groves	Larch shoot blight
<u>Endocronartium harknessii</u> (J.P. Moore) Y. Hirat. (= <u>Peridermium harknessii</u> J.P. Moore)	Western gall rust
<u>Erwinia amylovora</u> (Burr.) Winsl.	Fireblight
<u>Erwinia nimipressuralis</u> Carter	Bacterial wetwood
<u>Erysiphe</u> spp.	Powdery mildew
<u>Flammulina velutipes</u> (Curt.:Fr.) Sing. ( <u>Fomes annosus</u> )	Flammulina trunk rot of aspen Annosus root disease
( <u>Fomes applanatus</u> )	White mottled rot
( <u>Fomes demidoffii</u> )	Juniper pocket rot
<u>Fomes fomentarius</u> (L.:Fr.) Kickx ( <u>Fomes geotropus</u> )	Fomes trunk rot of birch Root and butt rot of Cottonwood
( <u>Fomes igniarius</u> )	Hardwood trunk rot
( <u>Fomes igniarius</u> f. <u>tremulae</u> )	Aspen trunk rot

( <u>Fomes juniperinus</u> )	Juniper pocket rot
( <u>Fomes laricis</u> )	Brown trunk rot
( <u>Fomes officinalis</u> )	Brown trunk rot
( <u>Fomes pini</u> )	Red ring rot
( <u>Fomes pinicola</u> )	Brown crumbly rot
( <u>Fomes roseus</u> )	Brown top rot
( <u>Fomes ulmarius</u> )	Root and butt rot of cottonwood
( <u>Fomitopsis annosa</u> )	Annosus root disease
<u>Fomitopsis cajanderi</u> (Karst.) Kotl. & Pouz.	Rose fomes rot
<u>Fomitopsis officinalis</u> (Vill.:Fr.) Bond & Sing. (= <u>Fomes officinalis</u> (Vill.:Fr.) Faull) (= <u>Fomes laricis</u> (Jacq.) Murr.)	Brown trunk rot
<u>Fomitopsis pinicola</u> (Schwartz:Fr.) Karst. (= <u>Fomes pinicola</u> (Schwartz:Fr.) Cke.)	Brown crumbly rot
<u>Fomitopsis rosea</u> (Alb. & Schw.:Fr.) Karst. (= <u>Fomes roseus</u> (Alb. & Schw.:Fr.) Cke.)	Brown top rot
<u>Fomitopsis ulmarius</u> (Sow.:Fr.) Bond & Sing.	Root and butt rot of cottonwood
<u>Fusarium</u> spp.	Damping off
<u>Fusarium avenaceum</u> (Fr.) Sacc.	Cortical stem rot
<u>Fusarium reticulatum</u> Mont. var. <u>negundinis</u> (Sherb.) Wr.	Red stain of boxelder
<u>Fusarium oxysporum</u> Schlect. emend Snyder & Hans.	Fusarium root disease
<u>Ganoderma applanatum</u> (Pers.:Wallr.) Pat. (= <u>Fomes applanatus</u> (Pers.:Wallr.) Gill.)	White mottled rot
<u>Ganoderma lucidum</u> (Leyss.) Karst	Ganoderma rot of hardwoods
<u>Ganoderma tsugae</u> Murr. (= <u>Ganoderma oregonense</u> Murr.) <sup>7</sup>	Ganoderma rot of conifers
<u>Glomerella cingulata</u> (Stonem.) Spauld. & Schrenk (= <u>Colletotrichum gloeosporioides</u> Penz.)	Glomerella blight of willow
<u>Gnomonia veneta</u> (Sacc. & Speg.) Kleb. [= <u>Gloeosporium nervisequum</u> (Eckl.) Sacc.]	Anthracnose

<sup>7</sup> Research is underway at the University of Arizona to determine whether G. tsugae and G. oregonense are distinct or not.

<u>Godronia fuliginosa</u> (Fr.) Seaver	Willow canker
<u>Gremmeniella abietina</u> (Lagerb.) Morelet (= <u>Scleroderris lagerbergii</u> Gremmen)	Scleroderris canker
<u>Grovesiella abieticola</u> (Zell. & Good.) Morelet & Gremmen (= <u>Scleroderris abieticola</u> Zell. & Good.)	Grovesiella canker
<u>Gymnosporangium bethelii</u> Kern	Bethel's juniper rust
<u>Gymnosporangium clavariiforme</u> (Jacq.) DC.	Clavariiform juniper rust
<u>Gymnosporangium clavipes</u> (Cke. & Pk.) Cke. & Pk.	Quince rust
<u>Gymnosporangium confusum</u> Plowr.	Hawthorn juniper rust
<u>Gymnosporangium cornutum</u> Arth. ex Kern	Mountain-ash juniper rust
<u>Gymnosporangium cunninghamianum</u> Barcl. (= <u>Gymnosporangium cupressii</u> Long & Good.)	Arizona cypress rust
<u>Gymnosporangium fuscum</u> Hedw.	Pear trellis rust
<u>Gymnosporangium gaeumannii</u> Zogg	Gaeumann's juniper rust
<u>Gymnosporangium harknessianum</u> Arth.	Amelanchier rust
<u>Gymnosporangium inconspicuum</u> Kern	Inconspicuous juniper rust
<u>Gymnosporangium juniperi-virginianae</u> Schw.	Cedar apple rust
<u>Gymnosporangium kernianum</u> Bethel	Kern's broom rust
<u>Gymnosporangium libocedri</u> (P. Henn.) Kern	Incense cedar rust
<u>Gymnosporangium multiporum</u> Kern	Multipored juniper rust
<u>Gymnosporangium nelsonii</u> Arth.	Nelson's gall rust
<u>Gymnosporangium nidus-avis</u> Thaxt.	Juniper broom rust
<u>Gymnosporangium nootkatense</u> Arth.	Yellow cypress rust
<u>Gymnosporangium speciosum</u> Pk.	Orange gall rust
<u>Gymnosporangium tremelloides</u> Hart.	Tremelloid gall rust
<u>Haematostereum sanguinolentum</u> (Alb. & Schw.:Fr.) Pouz. (= <u>Stereum sanguinolentum</u> (Alb. & Schw.:Fr.) Fr.)	Red heartrot
<u>Hendersonula toruloidea</u> Natt.	Sooty canker
<u>Hericium abietis</u> (Weir ex Hubert) K. Harrison	Yellow pitted rot

<u>Herpotrichia juniperi</u> (Duby) Petrak (= <u>Herpotrichia nigra</u> Hartig)	Brown felt blight
<u>Heterobasidion annosum</u> (Fr.) Bref. (= <u>Fomitopsis annosa</u> (Fr.) Karst.) (= <u>Fomes annosus</u> (Fr.) Cke.)	Annosus root disease
<u>Hirschioporus abietinus</u> (Dicks.:Fr.) Donk (= <u>Polyporus abietinus</u> Dicks.:Fr.) Donk)	Pitted saprot
<u>Hyalopsora aspidiotus</u> (P. Magn.) P. Magn.	Orange-spored fir-oakfern rust
<u>Hyalopsora polypodii</u> (Diet.) P. Magn.	Fragile-fern rust
<u>Hypodermella laricis</u> Tub.	Larch needle blight
<u>Hypodermella</u> spp.	Needlecast
<u>Hypoxylon mammatum</u> (Wahl.) J. H. Mill.	Hypoxylon canker
<u>Inonotus andersonii</u> (Ell. & Ev.) Cerny (= <u>Poria andersonii</u> (Ell. & Ev.) Neuman)	Trunk rot and canker of oak
<u>Inonotus arizonicus</u> Gilbn.	White trunk rot of sycamore
<u>Inonotus circinatus</u> (Fr.) Gilbn. (= <u>Polyporus tomentosus</u> Fr. var. <u>circinatus</u> (Fr.) Sartory & Maire) (= <u>Polyporus circinatus</u> Fr.)	Circinatus root rot
<u>Inonotus dryadeus</u> (Pers.:Fr.) Murr. (= <u>Polyporus dryadeus</u> Pers.:Fr.)	Butt and root rot of fir <sup>8</sup>
<u>Inonotus dryophilus</u> (Berk.) Murr. (= <u>Polyporus dryophilus</u> Berk.)	Inonotus trunk rot of oak
<u>Inonotus hispidus</u> (Bull.:Fr.) Karst. (= <u>Polyporus hispidus</u> Bull.:Fr.)	Canker rot of oak
<u>Inonotus munzii</u> (Lloyd) Gilbn. (= <u>Polyporus munzii</u> Lloyd)	White trunk rot of willow and cottonwood
<u>Inonotus obliquus</u> (Pers.:Fr.) Pilat (= <u>Poria obliqua</u> (Pers.:Fr.) Karst.)	Sterile conk trunk rot of birch
<u>Inonotus texanus</u> Murr. (= <u>Polyporus texanus</u> (Murr.) Sacc. & Trott.)	Inonotus trunk rot of mesquite and acacia
<u>Inonotus tomentosus</u> (Fr.) Gilbn. (= <u>Polyporus tomentosus</u> Fr.)	Tomentosus root rot
<u>Kabatina juniperi</u> Schneider & Arx  ( <u>Keithia thujina</u> )	Kabatina blight  Cedar leaf blight

<sup>8</sup>Rare on oaks in the western United States. Laetiporus sulphureus (Bull.:Fr.) Bond & Sing.  
Brown cubical rot  
(=Polyporus sulphureus Bull.:Fr.)

<u>Laurilia sulcata</u> (Burt) Pouz. (= <u>Stereum sulcatum</u> Burt)	Slimy rot
<u>Lentinus kauffmanii</u> A.H. Smith	Brown pocket rot of Sitka spruce
<u>Lentinus lepideus</u> Fr.	Lentinus butt rot
<u>Leucostoma kunzei</u> (Fr.) Munk [= <u>Leucocytospora kunzei</u> (Sacc.) Urban] (= <u>Cytospora kunzei</u> Sacc.)	Spruce cytospora canker
<u>Lirula</u> spp.	Needlecast
<u>Lophodermium seditiosum</u> Minter, Staley, & Millar ( <u>Macrophoma tumefaciens</u> )	Lophodermium needlecast Rough-bark of aspen
<u>Macrophomina phaseolina</u> (Tassi) Goid. (= <u>Macrophomina phaseoli</u> (Maubl.) Ashby)	Charcoal root disease
<u>Marssonina populi</u> (Lib.) Magn.	Marssonina blight
<u>Melampsora medusae</u> Theum.	Conifer-aspen rust
<u>Melampsora occidentalis</u> Jacks.	Conifer-cottonwood rust
<u>Melampsora paradoxa</u> Diet. & Holw.	Larch-willow rust
<u>Melampsora ribesii-purpureae</u> Kleb.	Ribes-willow rust
<u>Melampsorella caryophyllacearum</u> Schroet.	Fir broom rust
<u>Melampsorium betulinum</u> (Pers.) Kleb.	Birch rust
<u>Meria laricis</u> Vuill.	Larch needlecast
<u>Microsphaera</u> spp.	Powdery mildew
<u>Microstroma juglandis</u> (Bereng.) Sacc.	Walnut leaf spot and witches' broom
<u>Milesina laeviuscula</u> (Diet.) Y. Hirat.	Fir-polypody rust
<u>Mycosphaerella populorum</u> G. E. Thompson (= <u>Septoria musiva</u> Pk.)	Septoria leaf spot and canker
<u>Naemacyclus minor</u> Butin	Naemacyclus needlecast
<u>Nectria galligena</u> Bres. ( <u>Neopeckia coulteri</u> )	Nectria canker Brown felt blight
<u>Peniophora pini</u> (Fr.) Boid.	Red heart of lodgepole pine

<u>Perenniporia ellisiana</u> (Anderson) Gilbn. & Ryv.	Trunk rot of silver buffaloberry
<u>Perenniporia fraxinophila</u> (Pk.) Ryv.	Ash heart rot
<u>Perenniporia subacida</u> (Pk.) Donk (= <u>Poria subacida</u> (Pk.) Sacc.)	Yellow root rot
<u>Peridermium bethelii</u> Hedgc. & Long	Mistletoe blister rust
[ <u>Peridermium coloradense</u> ]	Spruce broom rust
<u>Peridermium filamentosum</u> Pk.	Powell Limb rust
( <u>Peridermium harknessii</u> )	Western gall rust
( <u>Peridermium stalactiforme</u> )	Stalactiform blister rust
<u>Phacidium abietis</u> (Dearn.) Reid & Cain	Snow blight
( <u>Phacidiella coniferarum</u> )	Phacidiella canker
( <u>Phacidiopycnis pseudotsugae</u> )	Phacidiella canker
<u>Phaeocryptopus gaeumannii</u> (Rhode) Petr. (= <u>Adelopus gaeumannii</u> Rhode)	Swiss needlecast
<u>Phaeolus schweinitzii</u> (Fr.) Pat. (= <u>Polyporus schweinitzii</u> Fr.)	Schweinitzii butt rot
<u>Phellinus arctostaphyli</u> (Long) Niemala (= <u>Fomes arctostaphyli</u> Long)	White trunk rot of manzanita
<u>Phellinus badius</u> (Berk.) G.H. Cunn. (= <u>Fomes badius</u> (Berk.) Cke.)	Mesquite and acacia trunk rot
<u>Phellinus chrysoloma</u> (Fr.) Donk	White pocket trunk rot
<u>Phellinus everhartii</u> (Ell. & Gall.) A. Ames (= <u>Fomes everhartii</u> (Ell. & Gall.) von Schrenk & Spaulding)	White trunk rot of oak
<u>Phellinus igniarius</u> (L.:Fr.) Quéf.	Hardwood trunk rot
<u>Phellinus nigrolimitatus</u> (Rom.) Bourd. & Galz. (= <u>Fomes nigrolimitatus</u> (Rom.) Egeland)	Big white pocket rot
<u>Phellinus occidentalis</u> (Overh.) Gilbn.	Hawthorn trunk rot
<u>Phellinus pini</u> (Thore:Fr.) Pilát (= <u>Fomes pini</u> (Thore:Fr.) Lloyd)	Red ring rot
<u>Phellinus robiniae</u> (Murr.) A. Ames (= <u>Fomes robiniae</u> (Murr.) Sacc. & D. Sacc.)	White trunk rot of black locust
<u>Phellinus robustus</u> (Karst.) Bourd. & Galz. (= <u>Fomes robustus</u> Karst.)	Robustus trunk rot of oak



<u>Phellinus texanus</u> (Murr.) A. Ames	Desert trunk rot
<u>Phellinus torulosus</u> (Pers.) Bourd. & Galz. (= <u>Fomes torulosus</u> (Pers.) Lloyd)	Butt and root rot of southwestern white pine
<u>Phellinus tremulae</u> (Bond.) Bond. & Boriss (= <u>Fomes igniarius</u> f. <u>tremulae</u> Bond.)	Aspen trunk rot
<u>Phellinus weirianus</u> (Bres.) Gilbn. (= <u>Fomes weirianus</u> Bres.)	White trunk rot of walnut
<u>Phellinus weirii</u> (Murr.) Gilbn. (= <u>Poria weirii</u> Murr.)	Laminated root rot
<u>Pholiota adiposa</u> (Fr.) Kumm.	Brown-mottled white rot
<u>Pholiota squarrosa</u> (Fr.) Kumm.	Pholiota butt and root rot of aspen
<u>Phomopsis juniperovora</u> Hahn.	Phomopsis blight
[ <u>Phomopsis lokoyae</u> ]	Phomopsis canker of Douglas-fir
( <u>Phomopsis pseudotsugae</u> )	Phacidiella canker
<u>Phoradendron bolleanum</u> (Seem) Eichl. subsp. <u>pauciflorum</u> (Torr.) Wiens	White fir mistletoe
<u>Phoradendron californicum</u> Nutt.	Desert mistletoe
<u>Phoradendron capitellatum</u> Torr. ex Trel.	Hairy juniper mistletoe
<u>Phoradendron cockerellii</u> Trel.	Rio Grande mistletoe
<u>Phoradendron coryae</u> Trel.	Southwestern oak mistletoe
<u>Phoradendron densum</u> Torr.	Dense mistletoe
<u>Phoradendron hawksworthii</u> Wiens (Ined.)	Texas juniper mistletoe
<u>Phoradendron juniperinum</u> Engelm. subsp. <u>juniperinum</u>	Juniper mistletoe
<u>Phoradendron juniperinum</u> Engelm. subsp. <u>libocedri</u> (Torr.) Wiens	Incense-cedar mistletoe
<u>Phoradendron macrophyllum</u> Cockerell	Bigleaf mistletoe
<u>Phoradendron</u> spp.	Mistletoe
<u>Phoradendron tomentosum</u> (DC.) Oliver	Mesquite mistletoe
<u>Phoradendron villosum</u> (Nutt.) Nutt.	Oak mistletoe
<u>Phyllactinia</u> spp.	Powdery mildew
<u>Phymatotrichum omnivorum</u> (Shear) Dugg.	Texas root rot

( <u>Phytomonas pseudotsugae</u> )	Douglas-fir bacterial gall
<u>Phytophthora</u> spp.	Damping-off
<u>Phytophthora cactorum</u> (Leb. & Cohn.) Schroet.	Phytophthora canker
<u>Phytophthora cinnamomi</u> Rands	Phytophthora root rot
<u>Phytophthora lateralis</u> Tuck. & J.A. Milb.	Port Orford-cedar root disease
<u>Phytophthora</u> spp.	Cambial necrosis
<u>Pleurotus ostreatus</u> (Jacq.:Fr.) Kumm.	Oyster mushroom rot
<u>Podosphaeria</u> spp.	Powdery mildew
( <u>Pollacia elegans</u> )	Venturia blight of cottonwood
( <u>Pollaccia radiosa</u> )	Shepherd's crook
( <u>Pollaccia saliciperda</u> )	Venturia blight of willow
( <u>Polyporus abietinus</u> )	Pitted saprot
( <u>Polyporus amarus</u> )	Dry pocket rot
( <u>Polyporus anceps</u> )	Red rot
( <u>Polyporus basilaris</u> )	Brown pocket rot of cypress
( <u>Polyporus borealis</u> )	White butt rot of spruce
( <u>Polyporus circinatus</u> )	See circinatus root rot
( <u>Polyporus leucospongia</u> )	Subalpine brown saprot
( <u>Polyporus schweinitzii</u> )	Schweinitzii butt rot
( <u>Polyporus sulphureus</u> )	Brown cubical rot
( <u>Polyporus tomentosus</u> )	Tomentosus root rot
( <u>Polyporus tomentosus</u> var. <u>circinatus</u> )	See circinatus root rot
( <u>Polyporus volvatus</u> )	Gray-brown saprot
<u>Poria albipellucida</u> Baxt.	White laminated rot
( <u>Poria asiatica</u> )	Brown cubical butt and pocket rot of cedar
<u>Poria carnegiea</u> Baxt.	Saguaro root rot
<u>Poria rimosa</u> Murr.	White trunk rot of juniper
( <u>Poria subacida</u> )	Yellow root rot

( <u>Poria weirii</u> )	Laminated root rot
<u>Potebniamyces balsamicola</u> Smerlis	Red flag disease
<u>Potebniamyces coniferarum</u> (Hahn) Smerlis	Phacidiella canker
(= <u>Phacidiella coniferarum</u> Hahn)	
(= <u>Phomopsis pseudotsugae</u> M. Wils.)	
[= <u>Phacidiopycnis pseudotsugae</u> (M. Wils.) Hahn]	
<u>Pratylenchus penetrans</u> Cobb	Root lesion nematode
( <u>Pseudomonas tumefaciens</u> )	Crown gall
<u>Pucciniastrum americanum</u> (Farl.) Arth.	American spruce-raspberry rust
<u>Pucciniastrum arcticum</u> Tranz.	Arctic spruce-raspberry rust
<u>Pucciniastrum epilobii</u> Otth	Fir-fireweed rust
<u>Pucciniastrum geoppertianum</u> (Kuehn) Kleb.	Fir-blueberry rust
<u>Pucciniastrum pustulatum</u> Diet.	Fir-willow herb rust
<u>Pucciniastrum sparsum</u> (Wint.) E. Fischer	Spruce-bearberry rust
<u>Pucciniastrum vaccinii</u> (Rab.) Joerst.	Hemlock-blueberry rust
<u>Pyrofomes demidoffii</u> (Lev.) Kotl. & Pouz.	Juniper pocket rot
(= <u>Fomes demidoffii</u> (Lev.) Cke.)	
(= <u>Fomes juniperinus</u> (Schrenk) Sacc. & Syd.)	
<u>Pythium aphanidermatum</u> (Eds.) Fitzp.	Pythium root disease
<u>Pythium</u> spp.	Damping-off
<u>Pythium ultimum</u> Trow	Pythium root disease
<u>Ravenelia pringlei</u> Cumm.	Acacia broom rust
<u>Rhabdocline pseudotsugae</u> Syd.	Douglas-fir needlecast
<u>Rhabdocline weirii</u> Parker & Reid	Douglas-fir needlecast
<u>Rhizina undulata</u> Fr.	Rhizina root disease
<u>Rhizoctonia solani</u> Kuhn	Damping-off
<u>Rhizosphaeria kalkhoffii</u> Bub.	Spruce mottled needlecast
<u>Rhytidiella baranyayi</u> Funk & Zalasky	Cork-bark of aspen
<u>Rhytisma</u> spp.	Tar spots
<u>Rigidiporus ulmarius</u> (Sow.:Fr.) Imazeki	Root and butt rot of cottonwood
(= <u>Fomes ulmarius</u> (Sow.:Fr.) Cke.)	
(= <u>Fomes geotropus</u> (Cke.) Cke.)	

<u>Rosellinia herpotrichioides</u> Hept. & Davidson	Rosellinia needle blight
<u>Scirrhia acicola</u> (Dearn.) Sigg. (= <u>Systemma acicola</u> (Dearn.) Wolf & Barbour)	Brown spot needle blight
<u>Scirrhia pini</u> Funk & A. K. Parker (= <u>Dothistroma pini</u> Hulb.)	Dothistroma needle blight
( <u>Scleroderris abieticola</u> )	Grovesiella canker
( <u>Scleroderris lagerbergii</u> )	Scleroderris canker
<u>Sclerophoma pithyophila</u> (Cord.) Hoehn. (= <u>Sydowia polyspora</u> (Bref. & Tav.) E. Muller)	Sydowia tip dieback of pines
<u>Septoria aceris</u> (Lib.) Berk. & Br.	Maple leaf spot
( <u>Septoria musiva</u> )	Septoria leaf spot and canker
<u>Seiridium cardinale</u> (Wagener) Sutton & Gibson (= <u>Coryneum cardinale</u> Wagener)	Cypress canker
<u>Sirococcus strobilinus</u> (Dearn.) Petr.	Sirococcus tip blight
<u>Sparassis crispa</u> Wulf.:Fr. (= <u>Sparassis radicata</u> Weir)	Sparassis root rot
<u>Sphaeropsis sapinea</u> (Fr.) Dyko & Sutton (= <u>Diplodia</u> (Desm.) Kickx.)	Diplodia blight
<u>Sphaerotheca</u> spp.	Powdery mildew
<u>Sphaerotheca phytophila</u> Kell. & Swing.	Hackberry witches' broom
( <u>Stereum purpureum</u> )	Silver leaf disease
( <u>Stereum sanguinolentum</u> )	Red heart rot
( <u>Stereum sulcatum</u> )	Slimy rot
( <u>Sydowia polyspora</u> )	Sydowia tip dieback of pines
( <u>Systemma acicola</u> )	Brown spot needle blight
<u>Taphrina communis</u> (Sadob.) Gies.	Plum pocket rot
<u>Therrya piceae</u> Funk	Therrya canker
<u>Thyronectria austro-americana</u> (Speg.) Seeler	Thyronectria canker
<u>Tranzschelia pruni-spinosae</u> (Pers.) Diet.	Plum rust
<u>Trichaptum abietinum</u> (Dicks.:Fr.) Ryv. (= <u>Polyporus abietinus</u> Dicks.:Fr.)	Pitted saprot
<u>Tyromyces amarus</u> (Hedgc.) Lowe (= <u>Polyporus amarus</u> Hedgc.)	Brown pocket rot of incense-cedar

<u>Tyromyces balsameus</u> (Pk.) Murr. (= <u>Polyporus balsameus</u> Pk.) (= <u>Polyporus basilaris</u> Overh.)	Brown pocket rot of cypress
<u>Tyromyces leucospongia</u> (Cke. & Hark.) Bond. & Sing. (= <u>Polyporus leucospongia</u> Cke. & Hark.)	Subalpine brown saprot
<u>Tyromyces sericeomollis</u> (Rom.) Bond. & Sing. (= <u>Poria asiatica</u> (Pilát) Overh.)	Brown cubical butt and pocket rot of cedar
<u>Uncinula</u> spp.	Powdery mildew
<u>Uredinopsis hashiokai</u> Y. Hirat.	Hashioka's fir-bracken rust
<u>Uredinopsis longimucronata</u> Faull	Fir-lady-fern rust
<u>Uredinopsis phegopteridis</u> Arth.	White-spored fir-oakfern rust
<u>Uredinopsis pteridis</u> Diet. & Holw.	Common fir-bracken rust
<u>Uredinopsis struthiopteridis</u> Stoerm. ex Dietr.	Fir ostrich-fern rust
<u>Ustulina vulgaris</u> Tul.	Coal fungus
<u>Valsa abietis</u> Fr. [= <u>Cytospora abietis</u> Sacc.]	Cytospora canker of true fir
<u>Valsa sordida</u> Nitschke [= <u>Cytospora chrysosperma</u> (Pers.) Fr.]	Cytospora canker
<u>Veluticeps berkeleyi</u> (Berk. & Curt.) Cke.	Veluticeps rot of ponderosa pine
<u>Venturia macularis</u> (Fr.) Mull. & Arx [= <u>Pollaccia radiosa</u> (Lib.) Bald. & Cif.]	Shepherd's crook
<u>Venturia populina</u> (Vuill.) Fabric. [= <u>Pollacia elegans</u> Serv.]	Venturia blight of cottonwood
<u>Venturia saliciperda</u> Nuesch [= <u>Pollaccia saliciperda</u> (Allesch. & Tub.) Arx.]	Venturia blight of willow
[ <u>Verticicladiella wagnerii</u> ]	Black stain root disease
<u>Verticillium dahliae</u> Kleb.	Verticillium wilt
<u>Viscum album</u> L.	European mistletoe
<u>Xiphinema bakeri</u> Williams	Corky root disease

## REFERENCES

- Aho, Paul E. 1982. Indicators of cull in western Oregon conifers. USDA Forest Service General Technical Report. PNW-144. 17 p.
- Barr, Margaret E. 1984. Herpotrichia and its segregates. Mycotaxon 20: 1-38.
- Bega, Robert V. 1978. Diseases of Pacific Coast conifers. USDA Forest Service, Agricultural Handbook 521. 206 p.
- Boyce, J. S. 1961. Forest Pathology, 3d Edition. McGraw-Hill, N.Y. 572 p.
- Canada Department of Agriculture. 1975. Names of plant diseases in Canada, Second Edition. Quebec. 288 p.
- Foster, R. E., and G. W. Wallis. 1969. Common tree diseases of British Columbia. Canadian Department of Fisheries and Forestry. Forestry Branch Publication 1245. 116 p.
- Funk, A. 1981. Parasitic microfungi of western trees. Canadian Forestry Service, Pacific Forest Research Centre Report BC-X-222. 190 p.
- Gilbertson, Robert L. 1974. Fungi that decay ponderosa pine. University of Arizona Press, Tucson. 197 p.
- Hawksworth, Frank G., and Delbert Wiens. 1972. Biology and classification of dwarf mistletoes (Arceuthobium). USDA Forest Service, Agricultural Handbook 401. 234 p.
- Hepting, George H. 1971. Diseases of forest and shade trees of the United States. USDA Forest Service, Agricultural Handbook 386. 658 p.
- Hubert, Ernest E. 1931. An outline of forest pathology. John Wiley and Sons, N.Y. 543 p.
- Hubert, F. P. 1951. Common names of diseases of woody plants. Plant Disease Reporter, Supplement 207:205-235.
- James, Robert L., and James E. Dewey. 1981. Summary of forest insect and disease conditions in the Northern Region--1980. USDA Forest Service, Northern Region, Forest Pest Management Report 81-1. 23 p.
- Johnson, David W. 1982. Forest pest management training manual. USDA Forest Service, Rocky Mountain Region, Forest Pest Management. 138 p.
- Laut, John G., Larry B. Helburg, David A. Leatherman, Michael E. Schomaker, and J. J. Krieg. 1980. Colorado forest insect and disease conditions, 1978-1979. Colorado State Forest Service, Insect and Disease Division, Fort Collins, Colo. 111 p.
- Lindsey, J. P., and R. L. Gilbertson. 1978. Basidiomycetes that decay aspen in North America. J. Cramer, Vaduz, West Germany. 406 p.
- Partridge, A. D., and E. R. Canfield. 1980. Frequency and damage by forest-tree pests in southern Idaho. University of Idaho Forest, Wildlife and Range Experiment Station, Station Note 34. 7 p.

- Partridge, A. D., E. R. Canfield, and D. L. Kulhavy. 1978. Keys to major disease, insect and related problems of forests of northern Idaho. University of Idaho, Forest, Wildlife and Range Experiment Station Contr. 127. 100 p.
- Partridge, A. D., and D. L. Miller. 1974. Major wood decays in the Inland Empire. University of Idaho, Idaho Research Foundation Natural Resource Series No. 3. 125 p.
- Peterson, Glenn W. 1982. Pine and juniper diseases in the Great Plains. USDA Forest Service General Technical Report RM-86. 47 p.
- Peterson, Glenn W., and Richard S. Smith, Jr. 1975. Forest nursery diseases in the United States. USDA Forest Service, Agricultural Handbook 470. 125 p.
- Peterson, R. S. 1968. Limb rusts of pine: the causal fungi. *Phytopathology* 58: 309-315.
- Shaw, Charles Gardner. 1973A. Fungus index for the Pacific Northwest. I. Hosts. Washington State University, Agricultural Experiment Station Bulletin 765. 121 p.
- Shaw, Charles Gardner. 1973B. Fungus index for the Pacific Northwest. II. Fungi. Washington State University, Agricultural Experiment Station Bulletin 766. 162 p.
- Shaw, C. G., and M. C. Harris. 1967. Important diseases and decays of trees native to Washington. Washington State University Extension Bulletin 540. Pullman, Wash. 35 p.
- Spaulding, Perley. 1956. Diseases of North American forest trees planted abroad. USDA Forest Service, Agricultural Handbook 100. 144 p.
- Spaulding, Perley. 1961. Foreign diseases of forest trees of the world. USDA Forest Service, Agricultural Handbook 197. 361 p.
- Sterner, T. E., and Davidson, A. G. 1982. Forest insect and disease conditions in Canada, 1981. Canadian Forestry Service, Forest Insect and Disease Survey, Ottawa. 46 p.
- U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 1983. Christmas tree pest manual. USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minn. 107 p.
- Ziller, Wolf G. 1974. The tree rusts of western Canada. Canadian Department of Environment, Canadian Forestry Service Publ. 1329. 272 p.