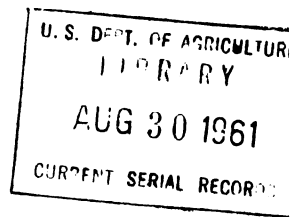
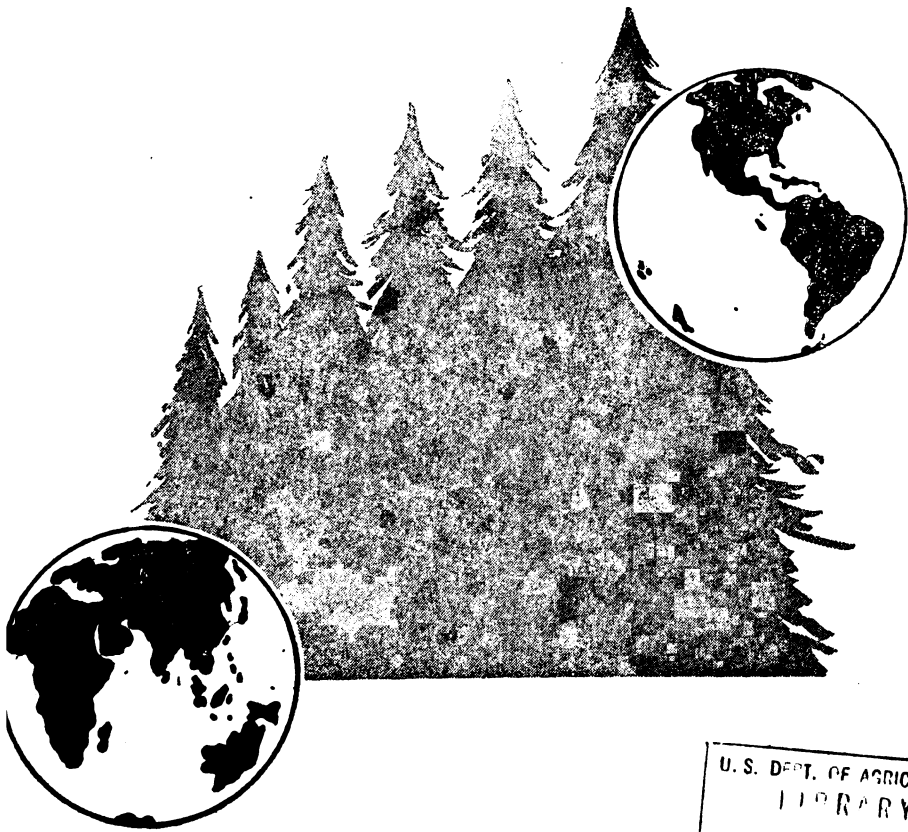


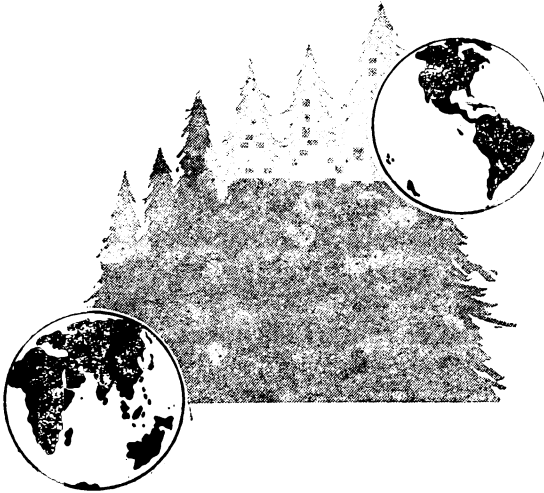
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**Foreign Diseases
of Forest Trees of the World**



AGRICULTURE HANDBOOK NO. 197
U.S. DEPARTMENT OF AGRICULTURE

Foreign Diseases of Forest Trees of the World

An Annotated List



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Growth Through Agricultural Progress

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Foreign Diseases of Forest Trees of the World

INTRODUCTION

Diseases of forest trees may be defined briefly as abnormal physiology caused by four types of factors, singly or in combination: (1) Nonliving, usually referred to as nonparasitic or site factor; (2) animals, including insects and nematodes; (3) plants; and (4) viruses. This handbook deals only with diseases due to plants and viruses.

Although diseases caused by nonliving factors are not included, it must be clearly understood that low vigor of trees, not only resulting from unsuitable site but also induced by defoliation, can be disastrous because they increase susceptibility to severe attacks by semipathogens. This is particularly true of planted and exotic trees. Diseases of slight importance on naturally regenerated trees in their native range often are serious to trees planted on unsuitable sites and may be destructive to exotics. Conversely, obligate parasites tend to attack the most vigorous host trees and leave subnormal ones unscathed. Thus, subnormal vigor may decrease danger from obligate pathogens, but it may increase danger from semiparasites. Growth vigor of exotics is desirable, but no guarantee that an exotic will not be attacked if planted extensively.

The pests that cause tree diseases do not confine their activities within political boundaries. Many diseases have been introduced into North America¹ from abroad, for example, white pine blister rust, larch canker, and *Ceratocystis* (*Ceratostomella*) elm disease from Europe; and the chestnut bark disease from China. These introductions into North America and similar ones into many other countries make it essential to have readily available more information on forest tree diseases of all countries.

To this end a survey was made of published reports on the infectious forest tree diseases of the world. The causal agents included are viruses, bacteria, and fungi. Algae and lichens are not included because they cause relatively few and unimportant diseases. The mistletoes are not included as they are considered in detail, with over 2,100 references to the world literature on them, in Technical Bulletin 1242 by Lake S. Gill and Frank G. Hawksworth, entitled "The Mistletoes; A Literature Review."

Robert Hartig, who is rightly called "the father of forest pathology," began his investigations about 1870, and except for a few earlier publications that have been reviewed, this survey covers the period from 1870 to about 1955.

¹ The term "North America" as used in this publication includes the areas of Alaska, Canada, and the United States.

The publications examined include numerous forestry and arboricultural journals, abstracting journals, reports by forestry organizations, pathological and mycological papers, and some comprehensive annotated lists of fungi of foreign countries.

The results of this survey are being published in three parts, of which two have already been issued, namely, "Diseases of North American Forest Trees Planted Abroad," U.S. Dept. Agr., Agr. Handb. 100, 144 pp., 1956; and "Diseases of Foreign Forest Trees Growing in the United States," U.S. Dept. Agr., Agr. Handb. 139, 118 pp., 1958.

This third and final handbook in the series lists the infectious foreign forest tree diseases of the world, with indication of the damage caused and the potential danger to other regions outside the known range of each pathogen.

The distribution given is the reported distribution of the pathogen on all hosts, and includes saprophytic as well as parasitic occurrences. Where known, the occurrence of foreign diseases of forest trees in North America is given, to show the entire reported range of such pathogens.

The term "forest trees" is used for trees growing in planted or naturally reproduced forest stands. Shrubs and woody vines are not usually included. A tree that exists in extensive wild stands within its native range and is grown in planted stands outside its native range, but not in fruit orchards in the common meaning of that term, is considered a forest tree.

The references accumulated in this entire survey, although incomplete, number well over 3,000. These are strongly directed toward the forestry viewpoint. They are available for reference on index cards filed at the Forest Disease Laboratory, Northeastern Forest Experiment Station, New Haven, Conn.

THE DISEASES

This publication lists the parasitic (pathogenic) diseases of forest trees in foreign countries.² These diseases are separated into three groups according to the type of causal agent:

Viruses, listed by common names.

Bacteria, listed by Latin names.

Fungi, listed by Latin names.

The scientific name of each pathogen includes the author of the name, followed by (x), (xx), or (xxx) indicating the class of parasitism of that pathogen. It is believed important to point out this character as foretelling possible action of the pathogens when they arrive in a region not previously infected. Accordingly, three classes of parasitism have been set up.

The first (x) class includes semipathogens that normally live saprophytically but cause disease occasionally under suboptimum conditions for the host tree, or under conditions especially favoring increase in the vigor of the pathogen.

The second (xx) class includes wound parasites that can attack trees only through wounds that expose inner living tissues to easy attack.

² The term "foreign countries" includes all land areas not in Alaska, Canada, and continental United States.

Nearly all decays of living trees and a considerable number of other tree diseases are of this type. Many wound pathogens can live saprophytically for years. Published reports of wound parasitism are but a small sample of all occurrences, as infection of wounds is very erratic and easily overlooked in early stages of decay. Numerous instances are given in the text where only one or two hosts are listed as being parasitized; these are merely isolated published cases out of hundreds that have escaped mention in print.

Class three (xxx) pathogens are obligate parasites, able to attack healthy, uninjured trees. In fact, many obligate parasites, such as the white pine blister rust fungus, attack the most vigorous and thrifty trees, whereas suppressed individuals escape.

Each disease is annotated with the available data on life history, severity, and general distribution of the pathogen.

By far the greater number of tree diseases are caused by fungi. Fungi are living organisms and exhibit individuality. Moreover, of late years many fungus species have been found to have numerous races, often varying in pathogenicity. Parasites that are widely and generally distributed in one region may have especially aggressive races not yet present in other regions. Intensive investigation has shown that black stem rust of wheat has hundreds of races varying in pathogenicity and host specificity, *and is constantly developing new races.*

Somewhat similar action is to be expected of some tree-inhabiting fungi, such as *Armillaria mellea*, with its worldwide range and numerous recognized varieties, indicating ability to vary distinctly. Although this fungus is common in nearly all forests, its introduction from another region on nursery trees or wood, or in soil from overseas, might materially increase the root-rot problem for some of the tree species in other continents. The same fact is undoubtedly true, although probably to a lesser extent, for other forest pathogens.

A common name for a disease is given, wherever known. Synonyms of Latin tree and fungus names are omitted, the name given being that believed to be technically correct according to the International Code of Botanical Nomenclature and generally accepted or most commonly used.

Agriculture Handbook No. 100, issued in 1956, listed records of diseases of North American forest trees growing in other countries; but a number of such records not included in that publication have been found. They are listed here without individual comment on their native range.

Viruses

Virus diseases have been known the world over for many years, but their causes have become known only during the past few decades. Virus diseases of economic crops have received the most study. Some forest tree viruses are well known and there are, undoubtedly, many undiscovered viruses in forests of the world that will be found when more intensive studies can be made.

The mosaic diseases are generally distributed and have characteristic symptoms easily detected so that they appear more numerous than other types of virus diseases. The mosaic virus diseases have as symptoms the following leaf abnormalities, singly or in combination: yellow mottling, vein etching, ring spot, leaf curling, reduction in size,

and abnormal form. Severe attacks may cause leaves, branches, and even entire trees to die.

Virus, Little-leaf (xxx) little-leaf

A disease of roses, linden, and elm with various leaf deformations, as little-leaf and cupped-leaf. Little-leaf appears to occur primarily on roses and to spread to linden and elm in the neighborhood of the infected roses. Known in Czechoslovakia.

Tilia americana: Czechoslovakia.

T. cordata: Czechoslovakia.

T. platyphyllos: Czechoslovakia.

Ulmus sp.: Czechoslovakia.

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Acacia* in Mauritius.

Acacia concinna: Mauritius.

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Albizia* in Mauritius.

Albizia lebbek: Mauritius.

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Allamanda* in Mauritius.

Allamanda cathartica: Mauritius.

Virus, Mosaic (xxx) birch mosaic

Mosaic of birch is reported from Czechoslovakia.

Betula sp.: Czechoslovakia.

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Bougainvillea* in Mauritius.

Bougainvillea spectabilis: Mauritius.

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Broussonetia* in China.

Broussonetia papyrifera: China (Hwangtung).

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Coffea* with leaves dwarfed and distorted. Entire plants sometimes are stunted. Reported in Uganda.

Coffea arabica: Uganda.

C. canephora var. *robusta*: Uganda.

Virus, Mosaic (xxx) conifer mosaic

Spruce and pine needles become mottled yellowish, especially where *Chermes* develop abundantly. This is believed to be a virus disease and is reported in Czechoslovakia.

Picea abies: Czechoslovakia.

Pinus mugo var. *pumilio*: Czechoslovakia.

Virus, Mosaic (xxx) mosaic

Causes mosaic of *Cordia* with leaf necrosis. Reported in Mauritius.

Cordia macrostachya: Mauritius.

Virus, Mosaic (xxx) mosaic

Causes an orange leaf spot and reduction in size of the leaflets even to the primary veins of *Elaeis*. It spreads by contact. It is known in French Equatorial Africa.

Elaeis guineensis: French Equatorial Africa.

Virus, Mosaic (xxx) mosaic

Causes mosaic of fig on sucker leaves in one locality and malformation in another. Distributed in Bulgaria, Italy, China, and New Zealand.

Ficus sp.: Bulgaria, Italy.

F. carica: China, Italy, New Zealand.

F. carica var. *sylvestris*: Italy.

Virus, Mosaic (xxx) mosaic

Causes mosaic mottling, puckering, reduction in size of leaf blades, stunting of the entire tree sometimes resulting; and finally death of mulberry trees. Distributed in China, Japan, and Puerto Rico.

Morus sp.: China, Japan.

M. alba: Puerto Rico.

Virus, Mosaic (xxx) mosaic

Causes yellow mottling of leaves of *Pithecellobium* in El Salvador.

Pithecellobium dulce: El Salvador.

Virus, Leaf-curl mosaic (xxx) sandalwood mosaic

Causes, in early stages, interveinal mosaic mottling in full-grown leaves with marked drooping of leaves and twigs. Later, leaves are curled, crinkled, mottled, dwarfed in length, thickened, brittle, and fall prematurely. Twigs soon die and lateral shoots are proliferated.

Santalum album: India.

Virus, Mosaic (xxx) mosaic

Linden mosaic is reported in Czechoslovakia.

Tilia cordata: Czechoslovakia.

Virus, Mosaic (xxx) mosaic

Elm mosaic is known in Bulgaria and Czechoslovakia.

Ulmus sp.: Bulgaria, Czechoslovakia.

Virus, Red mottle (xxx) cacao red mottle

Causes reddening along the main leaf veins; small cleared areas along the veins forming discontinuous yellow patches, occasional crinkling or a leaf-tip necrosis, and red mottling in young pods of some clones. Known in Trinidad.

Theobroma cacao: Trinidad.

Virus, Rosette (xxx) rosette

Occurs on *Chrysophyllum* and a number of other plants. It is not seedborne. Close planting reduces infection. Known in Gambia, Africa.

Chrysophyllum cainito: Gambia.

Virus, Rosette (xxx)**Pistache rosette**

Causes rosette on wild *Pistacia* trees over a large area. Tree vigor is subnormal. Twigs, leaves, and inflorescences are abnormal and fruiting is much reduced. The disease is transmitted through seeds by budding and by the insect *Liothrips pistaciae*. Distributed east of the Caspian Sea in Turkmenistan, Uzbekistan, and Tadzhikistan.

Pistacia vera: Turkmenistan, Tadzhikistan, Uzbekistan.

Virus, Sandal spike (xxx)**sandalwood spike**

Occurs chiefly on *Santalum* but spikelike disease occurs on numerous other trees, especially *Ziziphus oenoplia*. Sandal, being a parasite on many other trees, is much more resistant to spike on some of its hosts, and conversely much more susceptible on some other hosts. Symptoms of spike disease are abnormally stiff, straight shoots with short internodes and stiff, erect leaves. New leaves become progressively smaller, narrower, and more pointed, growing in tufts at the ends of bare branches. Infected trees die within 2 to 3 years. Distributed in southern India.

Santalum album: India.

Ziziphus oenoplia: India.

Virus, Swollen shoot (xxx)**cacao swollen shoot**

There are two or more strains of cacao swollen shoot virus, which are not clearly differentiated. A number of native African trees probably were original hosts. Typical swollen shoot causes the following symptoms: in young leaves mosaic mottling usually as a veinal network, dwarfing of leaves or leaf shedding; pods mottled, short internodes, smooth, elongate swellings in branch tips, tapering gradually to constrictions; dieback of branches and trunk; root swellings. Typical swollen shoot occurs in the Gold Coast. The disease complex occurs in the Gold Coast, Ivory Coast, Nigeria, and French West Africa; Peru and Ecuador.

Adansonia digitata: Gold Coast, Nigeria, Ivory Coast.

Bombax buonopozense: Gold Coast.

Ceiba pentandra: Gold Coast, Nigeria, Ivory Coast.

Cola chlamydantha: French West Africa, Ivory Coast, Gold Coast.

C. cordifolia: Gold Coast, Nigeria.

C. togoensis: French West Africa.

Pachira oleagina: French West Africa.

Sterculia rhinopetala: Ivory Coast, Gold Coast.

S. tragacantha: Ivory Coast, Gold Coast.

Theobroma bicolor: Gold Coast, Ivory Coast.

T. cacao: Ecuador, Peru, French West Africa, Gold Coast, Ivory Coast, Nigeria.

T. grandiflora: French West Africa.

Virus, Mosaic (xxx)**variegation**

Causes yellow variegations of maple leaves in Bulgaria, Czechoslovakia, England, France, Germany, and Japan.

Acer negundo: Bulgaria, Czechoslovakia.

A. pseudoplatanus: Czechoslovakia.

Virus, Mosaic (xxx)**variegation**

Causes mottled variegation of *Aesculus* leaves in Czechoslovakia.
Aesculus hippocastanum: Czechoslovakia.

Virus, Mosaic (xxx)**variegation**

Causes infectious chlorosis of ash. Transmitted by grafting. Distributed in England, Germany, and Bulgaria.
Fraxinus sp.: Bulgaria, England.

Virus, Witches'-broom (xxx)**witches'-broom**

Apparent virus-caused brooming and death of *Casuarina* was noted in Central America. Mottling of foliage was very characteristic. Many diseased trees had an unbalanced appearance from the dying lateral branches. Distributed in Mexico, Costa Rica, and Canal Zone.
Casuarina equisetifolia: Costa Rica, Canal Zone, Mexico.

Virus, Witches'-broom (xxx)**witches'-broom**

A witches'-broom disease of honeylocust with mottling and deformation of foliage was reported in Bulgaria.
Gleditsia triacanthos: Bulgaria.

Virus, Witches'-broom (xxx)**witches'-broom**

Causes witches'-broom of *Paulownia* in Japan. Transmitted by grafts.
Paulownia tomentosa: Japan.

Bacteria**Agrobacterium tumefaciens (E. F. Sm. & Towns.) Conn. (xx)**
crown gall

Causes tumors or galls on roots or stems, often larger than the part bearing them. They are convoluted and roughly spherical. The disease progresses slowly, stunting the plant, and finally killing it. Many plants are attacked, ranging from herbs to shrubs, vines, and trees. The disease is practically universal in distribution, occurring on all the continents and many islands.

Eucalyptus sp.: Russia, Transcaucasia.

E. citriodora: Brazil.

E. robusta: Brazil.

Flindersia brayleyana: Australia.

Juglans regia: Italy.

Morus sp.: Russia, Transcaucasia.

Populus sp.: France.

P. alba: Italy.

P. koreana: France.

P. simonii: France.

P. szechuanica: France.

Shorea javanica: Java.

Theobroma cacao: Gold Coast,

Bacillus cacticidus Johnston & Hitchcock (xx) **rot**

Causes rot and death of *Opuntia* in Florida. Cultures were made and taken to Australia. There the pathogen was set loose on their wild *Opuntia*, which had taken over thousands of acres of grazing land. The results were excellent. The pathogen is known only in Florida and Australia.

Opuntia ficus-indica: Australia.

O. tomentella: Australia.

Bacillus harai Hori & Miyake (xx) **willow blight**

Attacks basket willows by entering insect wounds, and causes girdling of stems and twig dieback. Reported in Japan.

Salix purpurea: Japan.

Bacillus populi Brizi (xxx) **poplar branch galls**

Said to cause galls or tubercles on branches of *Populus*. Reported in Italy and France.

Populus alba: Italy.

P. nigra: Italy.

P. tremula: Italy.

Bacillus vuilemini Trev. (xx) **pine gall**

Isolated from galls on *Pinus*. Reported in Belgium and Spain.

Pinus halepensis: Belgium, Spain.

Corynebacterium hypertrophicans (Stahel) Burk. (xxx) **bacterial fasciation**

Causes witches'-brooms. In early stages the twigs are 1 to 2 times normal thickness. Pale young leaves are curled, fully grown leaves often are perforated, and the terminal bud dies prematurely. *Eugenia latifolia* in Surinam is the only known reported host.

Eugenia latifolia: Surinam.

Erwinia amylovora (Burr.) Winsl. et al. (xxx) **fire blight**

Causes wilt and blight of all parts of pear, apple, and other related trees, particularly of the Pomoideae, in North America. Distributed in the United States, Canada, Transcaucasia, New Zealand, Australia, and Turkestan. Reported uncertainly from Mexico, Bermuda, Europe, and Asia.

Crataegus oxyacantha: New Zealand.

Erwinia mangiferae (Doidge) Bergey et al. (xxx)**mango black spot**

Causes small spots on leaves, petioles, stems, and fruits of *Mangifera*. Known in South Africa, Mozambique, Tanganyika, and Mauritius.

Mangifera indica: Mauritius, Mozambique, South Africa, Tanganyika.

Erwinia salicis (Day) Chester (xxx) **willow watermark disease**

Causes general wilting, withering, and browning of leaves and tips of new shoots on one or more branches of *Salix*. A thin, sticky, trans-

parent liquid exudes from insect wounds, covering the surface with a shiny varnishlike layer. The disease progresses until the tree dies. Vessels are plugged with masses of bacteria and starch disappears. Known only in England.

Salix alba: England.

S. alba var. *calva*: England.

S. rubens: England.

Micrococcus populi Del. (xx)

poplar canker

Isolated from natural cankers on *Populus*. Repeated tests gave no infections with pure cultures, but inoculations with the liquid from cankers produced similar cankers. Known in France, Italy, Belgium, and Great Britain.

Populus alba: France.

P. angulata: France.

P. balsamifera: France, Great Britain.

P. × berolinensis: Great Britain.

P. × canadensis: Great Britain, France, Italy.

P. × canadensis var. *eugenii*: Great Britain.

P. × canadensis f. *gelrica*: Great Britain.

P. × canadensis var. *marilandica*: Great Britain.

P. × canadensis var. *regenerata*: Great Britain.

P. × canadensis var. *serotina*: Great Britain.

P. canescens: France.

P. deltoides: Belgium, Great Britain.

P. × generosa: Great Britain.

P. nigra: France.

P. nigra var. *elegans*: Great Britain.

P. nigra var. *italica*: France, Great Britain.

P. × robusta: Great Britain.

P. tremula: France.

P. trichocarpa: Great Britain.

Pseudomonas aleuritidis (McCull. & Demaree) Stapp (xx)

tung leaf spot

Causes brown angular leaf spots on *Aleurites*. Distributed in Georgia, Louisiana, Russia, and Indochina.

Aleurites fordii: Russia.

A. montana: Indochina.

Pseudomonas castaneae (E. Kawamura) Savul. (xx)

chestnut bacterial spot

Causes leaf spots and brown, cracked lesions on the veins, petioles, and shoots, and destroys the buds. Leaves attacked when young are distorted. Known in Japan.

Castanea sp.: Japan.

Pseudomonas dysoxylis Hutch. (xxx)

leaf spot

Causes sharply defined greasy leaf spots up to 10 mm. across on *Dysoxylum*. These spots develop into hard grayish to black, dry, corky areas, which finally drop out. Oval lesions up to 50 x 6 mm. occur on smaller branches and petioles. Over 99 percent of older trees were affected. Tests proved pathogenicity of the bacterium,

and that it is normally transmitted by contact of diseased and healthy leaves, and in water drops. Known in New Zealand.

Dysoxylum spectabile: New Zealand.

***Pseudomonas lignicola* Westerd. & Buis. (xx) wood discoloration**

Causes dark, continuous streaks in the wood of *Ulmus*. Infects old and young branches. Inoculations discolored wood of several other genera. Distributed in Netherlands, England, and possibly Sweden and Denmark.

Ulmus sp.: England, Netherlands.

Zelkova sp.: Netherlands.

***Pseudomonas mangiferae-indicae* Patel, Moniz, & Kulkarni (xxx) leaf spot**

Causes small, angular, water-soaked spots up to 4 mm. across, light yellow to deep brown with clear halos on leaves of Anacardaceae. Spots also occur on petioles, fruits, and tender stems. Known only in India.

Anacardium occidentale: India.

Mangifera indica: India.

***Pseudomonas mori* (G. Boyer & F. Lambert) F. L. Stevens (xxx) mulberry bacterial spot**

Causes numerous water-soaked spots on leaves of *Morus*, which enlarge, coalesce, and turn black or brown with a yellow outer zone. Dark, sunken spots form on midribs and veins. Translucent stripes form on young shoots and many die. The dead leaves and shoots resemble fire blight of apple. Small cankers coalesce and girdle young twigs, causing stunting of the trees. Distributed in Canada, United States, Brazil, France, England, Italy, Germany, Romania, Bulgaria, Hungary, Russia, Japan, Korea, Tasmania, South Africa, Tanganyika, and Australia.

Morus sp.: Australia, Brazil, France, Germany, Hungary, Italy, Japan, Korea, Romania, Tasmania.

M. alba: Bulgaria, Great Britain, Italy, Russia (Tashkent).

M. australis: Russia (Tashkent).

M. indica: Tanganyika.

M. kagayamae: Russia (Tashkent).

M. nigra: Bulgaria, Union of South Africa.

***Pseudomonas rimaefaciens* Koning (xx) poplar canker**

[= *P. syringae* Van Hall f. *populea* Sabet & Dowson]

Causes local swellings on pale-colored bark of *Populus*. A slimy exudate oozes from lenticels or cracks forming a slimy layer in dry weather. Young branches are killed. On older branches irregular callus forms. Small red stripes develop in the wood. Distributed in England, Belgium, Netherlands, France, and probably Italy.

Populus sp.: France, England, Netherlands.

P. × canadensis: Netherlands.

P. × canadensis f. *erecta*: Belgium.

P. × canadensis f. *gelrica*: Belgium.

P. × canadensis var. *marilandica*: Belgium.

P. × canadensis var. *serotina*: Belgium.

P. robusta: Belgium.

Pseudomonas saliciperda Lindeijer (xxx) willow wilt

In the spring all the leaves of a single branch suddenly wilt, buds curl upward, dry leaves fall, and the branch withers completely. The disease gradually spreads through the entire tree. A clear fluid exudes throughout the season. Wood is first wet, then brown, and vessels are full of bacteria and brown gum. Insect dissemination is indicated. A number of *Salix* spp. are attacked. Known in the Netherlands.

Salix alba: Netherlands.

S. amygdalina: Netherlands.

S. purpurea: Netherlands.

S. viminalis: Netherlands.

Pseudomonas savastanoi (E. F. Smith) F. L. Stevens (xx) olive knot

Causes irregular, spongy, rather hard knotty growths on roots, trunks, branches, or leaves of a number of broad-leaved trees. The olive is especially susceptible and probably serves to carry the pathogen to wild forest trees in the neighborhood. The knots reach considerable size in a few months. Distal parts of infected shoots often die. The disease persists from year to year in a tree. Bacteria ooze to the surface of the galls in wet weather and are washed down to the lower parts of the infected tree. Distributed in the Mediterranean basin, Czechoslovakia, California, Mexico, and Argentina.

Fraxinus sp.: Czechoslovakia.

F. angustifolia: Portugal.

F. excelsior: Netherlands.

Pseudomonas savastanoi var. *fraxini* (N. A. Brown) Dows. (xx) ash canker

Causes roughened, somewhat swollen cankers on branches and trunks of *Fraxinus*. Resembles the olive knot disease but is more calluslike with less tubercular swelling. Distributed in Austria, Yugoslavia, Germany, France, Italy, Portugal, and England.

Fraxinus sp.: Germany.

F. americana: Austria, Yugoslavia, France, Italy, England.

F. angustifolia: Portugal.

F. excelsior: Austria, England, France, Germany, Italy, Portugal, Yugoslavia.

Pseudomonas solanacearum (E. F. Sm.) E. F. Sm. (xxx) vascular wilt

Causes vascular disease of many economically important plants, ranging from herbs to large timber trees. Symptoms are dwarfing, sudden wilting, shriveling of foliage, and brown stain of the vascular bundles. Plants of the family Solanaceae are most susceptible. Plants of 17 families are known hosts. This disease is practically universal in distribution especially in warmer regions where tobacco is grown. It occurs in North and South America, Europe, Africa, Asia, Australia, New Zealand, East and West Indies, Hawaii, and the Philippines.

Aleurites sp.: Sumatra.

Casuarina equisetifolia: Mauritius.

Tectona grandis: Sumatra.

Pseudomonas tectonae Roldan & Andres (xx) **teak seedling wilt**

Causes acute wilting of *Tectona* seedlings in clear, hot, sunny weather. Toward evening the wilt eases but becomes more pronounced each succeeding day until the plants collapse and die. The bacteria are found in the xylem vessels of the roots and in the stem in advanced cases. Pathogenicity was proved by inoculations and re-isolation. In one area an entire planting project was threatened with disruption. Known in the Philippines.

Tectona grandis: Philippines.

Xanthomonas acernea (Ogawa) Burk. (xx) **maple leaf spot**

Causes maple leaf spot followed by wilt and defoliation. *Acer*, *Aesculus*, and *Koelreuteria* are attacked. Known in Japan.

Acer aidzuensis: Japan.

A. buergerianum: Japan.

A. capillipes: Japan.

A. crataegifolium: Japan.

A. diabolicum: Japan.

A. insulare: Japan.

A. mono: Japan.

A. negundo: Japan.

A. nipponicum: Japan.

A. palmatum: Japan.

A. rufigerum: Japan.

A. shirasawanum: Japan.

A. sieboldianum: Japan.

Aesculus turbinata: Japan.

Koelreuteria paniculata: Japan.

Xanthomonas erythrinae Patel, Kulkarni & Dhande (xx) **leaf spot**

Causes small, water-soaked leaf spots 0.5 to 1 mm. in diameter, later turning brown with a halo, raised in the center on the lower leaf surface. Veins are infected and sometimes raised on the upper leaf surface. Known only in India.

Erythrina indica: India.

Xanthomonas juglandis (Pierce) Dows. (xxx) **bacterial spot**

Causes spot of leaves, green shoots, and nuts of *Juglans*. Much damage is done to the nut crop. Distributed in the Pacific Coast States and British Columbia and is general in Eastern United States; reported from Mexico, the West Indies, Chile, Iran, South Africa, New Zealand, Tasmania, Australia, Russia, Italy, Romania, Switzerland, Netherlands, France, Poland, and Great Britain.

Juglans sp.: New Zealand, Poland.

J. nigra: Italy.

J. regia: England, Iran, Italy.

Xanthomonas lawsoniae Patel, Bhatt & Kulkarni (xxx) **leaf spot**

Causes small, round, water-soaked spots at the margins of *Lawsonia* leaves in India.

Lawsonia inermis: India.

Xanthomonas melhusii Patel, Kulkarni, & Dhande (xxx) **teak leaf spot**

Causes small, angular, water-soaked leaf spots on *Tectona* in India.
Tectona grandis: India.

Xanthomonas vasculorum (Cobb) Dows. (xx) **palm bud rot**

In susceptible hosts palm bud rot is a vascular disease characterized by dwarfing of plants, white striping of the leaves, dying of the tops, decay of terminal buds, reddening of the vascular bundles, formation of yellow slime or gum in the bundles of stems and leaves. Reported in Brazil, Colombia, Madeira, Mauritius, Reunion Islands, Fiji Islands, New Guinea, Australia, Antigua, Barbados, Dominica, Guadeloupe, Mexico, Puerto Rico, St. Kitts, and St. Lucia.

Areca cathecu: Mauritius.

Cocos nucifera: Mauritius.

Dictyosperma album: Mauritius.

Roystonea regia: Mauritius.

Fungi

In the general account of diseases the entire distribution, both as saprophytes and as parasites, is given. In the fewer instances of specific hosts, only those are given where *parasitism* was stated.

Acanthostigma parasiticum (Hartig) Sacc. (xx) **blight**

Causes dying of needles of *Abies*, *Picea*, and *Tsuga*. The dead leaves are held on the twig by mycelial threads, which coat the surface. Some needles dangle loosely by the threads. Neighboring branches become diseased and this condition progresses until entire trees die in severe attacks. A 100-year-old stand of *A. alba* was badly damaged on the island of Bornholm. Development of the fungus is favored by quiet moist air in thickets and dense stands. The fungus is reported in Nova Scotia, Denmark, Germany, Great Britain, Switzerland, and Japan.

Abies alba: Denmark, Germany, Great Britain, Switzerland.

A. nordmanniana: Denmark.

Picea sp.: Japan.

P. abies: Germany.

Acervulopsora ichnocarpi (Barcl.) Thirum. (xxx) **rust**

Forms golden rust pustules on the lower surface of *Ichnocarpus* leaves. Known in India and Pakistan.

Ichnocarpus frutescens: India (Mysore), Pakistan.

Achrotelium lucumae (Arth. & J. R. Johnston) Cum. (xxx) **rust**

Rust on leaves of *Pouteria* in Cuba and Florida.

Pouteria campechiana: Cuba.

Aciculosporium take Miyake (xxx) bamboo witches'-broom

Associated with witches'-brooms on *Phyllostachys* in Japan (and China?).

Phyllostachys bambusoides: Japan.

P. nigra: Japan.

P. nigra var. *henonis*: Japan.

Actinonema fagicola Allesch. (x) leaf spot

On small rounded leaf spots on *Fagus* causing early leaf fall and swelling of buds. Known in Germany.

Fagus sylvatica: Germany.

Actinopelte dryina (Sacc.) Hoehn. (xx) leaf spot

Associated with leaf spots of numerous broad-leaved trees, varying in color with the hosts, and up to 10 mm. in size. Widely distributed in the United States, and known in Italy and Romania.

Quercus cerris: Romania.

Q. petraea: Romania.

Q. robur: Italy.

Actinopelte japonica Sieb. & Zucc. (xx) leaf spot

On leaves of *Castanea* in Japan and reported in New Jersey.

Castanea crenata: Japan.

Actinothecium callicola Speg. (xx) leaf spot

On small, rounded, light-brown leaf spots on *Eugenia*. Known only in Brazil.

Eugenia sp.: Brazil (Ypiranga).

Actinothecium guaraniticum Speg. (xx) leaf spot

On living leaves of *Aspidosperma* in Argentina.

Aspidosperma guaraniticum: Argentina.

Actinothyrium drimydis Speg. (xx) leaf spot

On round, pale-brown spots on living leaves of *Drimys* in Chile.

Drimys winteri: Chile (Valdivia).

Actinothyrium hopeae Graff (x) leaf spot

On spots of *Hopea* living leaves in the Philippines.

Hopea pierrei: Philippines.

Aecidium abscedens Arth. (xxx) rust

Forms yellow rust pustules on leaves of *Randia* in Costa Rica, Dominican Republic, and Puerto Rico.

Randia aculeata: Costa Rica, Dominican Republic, Puerto Rico.

Aecidium adenariae Mayor (xxx) rust

Forms rust pustules on leaves of *Adenaria* and *Combretum*. Distributed in Colombia and Venezuela.

Adenaria floribunda: Colombia.

A. floribunda var. *purpurata*: Colombia.

Combretum secundum: Venezuela.

- Aecidium alchorneae** Sacc. (xxx) rust
Causes rust pustules on leaves of *Alchornea* in the Philippines.
Alchornea rugosa: Philippines.
- Aecidium alibertiae** Arth. (xxx) rust
Forms deep-seated rust pustules on the lower leaf surface of *Alibertia* with cinnamon dusty spores within. Known in Trinidad.
Alibertia sp.: Trinidad.
- Aecidium amazonense** P. Henn. (xxx) rust
Forms rust pustules with light smoky-colored spores on leaves of *Guatteria* in Peru.
Guatteria sp.: Peru.
- Aecidium anningense** Tai (xxx) rust
Forms rust pustules on leaves of *Sophora*. Known in China.
Sophora davidii: China.
- Aecidium baileyanaum** Syd. (xxx) rust
Forms rust pustules on leaves of *Canthium*. Known in Queensland, Australia.
Canthium coprosmoides: Australia (Queensland).
- Aecidium balansae** Cornu (xxx) rust
Forms rust pustules on leaves of *Agathis*. Distributed in Straits Settlements and New Caledonia.
Agathis alba: Malaya (Straits Settlements) and New Caledonia.
- Aecidium bicolor** Sacc. (xxx) rust
Forms rust pustules on *Maba* leaves. Distributed in the Union of South Africa and India.
Maba natalensis: Union of South Africa (Natal, Durban).
- Aecidium brasiliense** Diet. (xxx) rust
Forms rust pustules on large, yellow, round leaf spots on *Cordia*. Distributed in Brazil, Trinidad, India, and Pakistan.
Cordia sp.: Brazil, Pakistan, Trinidad.
C. cylindrostachya: Trinidad.
C. discolor: Brazil.
C. ecalyculata: Brazil.
C. obscura: Brazil.
C. rothii: India.
- Aecidium breyniae** Syd. (xxx) rust
Causes rust of leaves of *Breynia*. Known in India and New Guinea.
Breynia sp.: Malaya (New Guinea).
B. rhamnoides: India.
- Aecidium brideliae-micranthae** Cumm. (xxx) rust
Forms short cupulate rust pustules 0.2 mm. across, densely aggregated, on blackish-brown leaf spots 15 mm. in diameter on the lower leaf surface of *Bridelia* in Sierra Leone.
Bridelia micrantha: Sierra Leone.

Aecidium byrsonimatis P. Henn. (xxx) rust

Causes hypertrophy of infected leaves and stems of *Byrsonima*. The rust pustules are large, white, and contain dusty, golden-brown spores. Distributed in Mexico, Guatemala, Nicaragua, Venezuela, Trinidad, and Brazil.

Byrsonima sp.: Brazil, Venezuela.

B. crassifolia: Guatemala, Venezuela.

B. verbascifolia: Trinidad.

Aecidium cerrense P. Henn. (xxx) rust

Forms cupulate brown rust pustules, containing dark, dusty spores, on leaves of *Protium*. Reported in Peru.

Protium sp.: Peru.

Aecidium cinnamomi Rac. (xxx) rust

Forms rust pustules containing orange spores on leaves and stems of *Cinnamomum*. Known only in Java.

Cinnamomum iners: Java.

C. zeylanicum: Java.

Aecidium clerodendri P. Henn. (xxx) rust

Forms yellow rust pustules on leaves of *Clerodendrum*. Distributed in Japan, India, Formosa, China, and Philippines.

Clerodendrum sp.: India.

C. cyrtophyllum: Formosa.

C. fragrans: Formosa.

C. paniculatum: China, Formosa, Japan.

Aecidium cordiae P. Henn. (xxx) rust

Forms cupulate rust pustules on leaves of *Cordia*. Distributed in the Dominican Republic, Trinidad, Venezuela, Brazil, and India.

Cordia curassavica: Brazil, Venezuela.

C. cylindrostachya: Trinidad.

C. globosa: Venezuela.

C. urticaefolia: Brazil.

Aecidium coutareae Kern & Thurston (xxx) rust

Forms rust pustules on leaves of *Coutarea* in Venezuela.

Coutarea hexandra: Venezuela.

Aecidium crataevae Syd. (xxx) rust

Forms rust pustules with yellow spores on large, rounded, sunken, yellow-brown leaf spots on *Crataeva*.

Crataeva religiosa: India, Pakistan.

Aecidium elaeocarpi Rac. (xxx) rust

Forms yellowish-brown rust pustules on leaves of *Elaeocarpus* in New Guinea.

Elaeocarpus sp.: New Guinea.

Aecidium elaeocarpicola Cumm. (xxx) rust

Forms rust pustules on leaves of *Elaeocarpus* in New Guinea.

Elaeocarpus sp.: New Guinea.

- Aecidium esculentum** Barcl. (xxx) rust
 Forms rust pustules on swollen and distorted fruiting twigs of *Acacia eburnea* in India and Pakistan. It is very plentiful in some districts and is eaten by the natives.
Acacia eburnea: India, Pakistan.
- Aecidium farameae** Arth. (xxx) rust
 Forms rust pustules on stems and leaves of *Faramea* in Cuba. Known only in the type locality.
Faramea occidentalis: Cuba.
- Aecidium fatsiae** Syd. (xxx) rust
 Forms rust pustules on leaves of *Tetrapanax* in Formosa.
Tetrapanax papyriferus: Formosa.
- Aecidium flavidum** Berk. & Br. (xxx) rust
 Forms rust pustules on leaves of *Pavetta*. Distributed in India, Philippines, and New Guinea.
Pavetta indica: New Guinea, Philippines.
- Aecidium fraxini-bungeanae** Diet. (xxx) rust
 Forms rust pustules on the leaves of *Fraxinus* and *Chionanthus* in China.
Fraxinus chinensis: China.
F. chinensis var. *rhynchophylla*: China.
- Aecidium hamamelidis** Diet. (xxx) rust
 Forms rust pustules on leaves of *Hamamelis* in Japan and of *Corylopsis* in China.
Corylopsis platypetala: China.
C. veitchiana: China.
Hamamelis japonica: Japan.
- Aecidium hansfordii** Cumm. (xxx) rust
 Forms cupulate rust pustules on leaves of *Canthium* in Uganda.
Canthium vulgaris: Uganda.
- Aecidium huallagense** P. Henn. (xxx) rust
 Forms rust pustules on leaves of *Guatteria* in Peru.
Guatteria alutacea: Peru.
- Aecidium immersum** P. Henn. (xxx) rust
 Forms rust pustules on reddish galls on young twigs of *Acacia*. Known only in Eritrea.
Acacia abyssinica: Eritrea.
- Aecidium incomparabile** Syd. (xxx) rust
 Causes galls with rust pustules on leaves of *Canthium*. Known in the Gold Coast and Congo.
Canthium sp.: Gold Coast.
C. arnoldiana: Congo.

- Aecidium jacarandae** P. Henn. (xxx) rust
Forms rust pustules on leaves of *Jacaranda* in Brazil.
Jacaranda sp.: Brazil.
- Aecidium lindavianum** Syd. (xxx) rust
Forms rust pustules on leaves of *Cordia* in Peru and Brazil.
Cordia alba: Brazil.
C. nodosa: Peru.
- Aecidium lipskianum** Jacz. (xxx) rust
Forms rust pustules on leaves and pods of *Cercis* in Russia.
Cercis siliquastrum: Russia (Turkistan).
- Aecidium machili** P. Henn. (xxx) rust
Causes rust on leaves of *Machilus* in China, Formosa, and Japan.
Machilus sp.: China, Formosa.
M. bournei: China.
M. longipaniculata: Formosa.
M. thunbergii: Japan.
Phoebe formosana: Formosa.
- Aecidium maprouneae** P. Henn. (xxx) rust
Forms rust pustules on irregular fuscous spots on leaves of *Maprounea* in Peru and Brazil.
Maprounea sp.: Peru.
- Aecidium meliosmae-myrianthae** P. Henn. & Shir. (xxx) rust
Forms cupulate rust pustules with brownish dusty spores on leaves of *Meliosma*. Distributed in Japan, China, and India.
Meliosma myriantha: China.
M. oldhamii: China.
M. parviflora: China.
- Aecidium meliosmae-pungentis** P. Henn. (xxx) rust
Rust of *Meliosma* deforming leaf blades and petioles in Japan and China.
Meliosma cuneifolia: China.
- Aecidium memecyli** Thirum. (xxx) rust
Causes systemic infection of young shoots of *Memecylon* resulting in formation of witches'-brooms with abundant powdery rust pustules on the infected stems. Known only in India.
Memecylon umbellatum: India.
- Aecidium mori** Barcl. (xxx) rust
Causes yellow rust on leaves of *Morus* and *Broussonetia* in the Philippines, Japan, Formosa, Java, India, Pakistan, and China.
Broussonetia kazinoki: China.
Morus sp.: Japan, India.
M. alba: China, India, Japan, Pakistan.
M. australis: China, Formosa, Japan.
M. indica: India, Pakistan.
M. serrata: India, Pakistan.

- Aecidium morobeanum** Cumm. (xxx) rust
 Forms rust pustules on leaves of *Cordia* in New Guinea.
Cordia dichotoma: New Guinea.
- Aecidium mulleri** Thurston (xxx) rust
 Forms rust pustules on leaves of *Nectandra* in Brazil.
Nectandra amara: Brazil.
- Aecidium nectandrae** Jacks. & Holw. (xxx) rust
 Forms rust pustules on leaves of *Nectandra* in Brazil.
Nectandra oppositifolia: Brazil.
- Aecidium ochraceum** Speg. (xxx) rust
 Causes indefinite, pale, ochraceous leaf spots on *Tabernaemontana* in Paraguay and Brazil.
Tabernaemontana amygdalifolia: Brazil.
- Aecidium oleariae** McAlp. (xxx) rust
 Forms orange rust pustules crowded on stems and leaves of *Olearia* in Australia.
Olearia axillaris: Australia.
- Aecidium osmanthi** Syd. & Butl. (xxx) rust
 Causes rust on leaves of *Osmanthus* in China and India.
Osmanthus fragrans: China.
- Aecidium patulum** Syd. (xxx) rust
 Causes rust of leaves, petioles, and fruits of *Crataegus* in India.
Crataegus intricata: India.
- Aecidium pisoniae** Arth. & J. R. Johnston (xxx) rust
 Causes leaf rust of *Pisonia* in Cuba.
Pisonia aculeata: Cuba.
- Aecidium plectroniae** Cke. (xxx) rust
 Causes leaf rust on *Canthium* in Natal and Queensland.
Canthium coprosmoides: Australia (Queensland).
- Aecidium ponderosum** H. & P. Syd. (xxx) rust
 Forms rust pustules on irregular, large, hard, woody tumors several centimeters long on branches of closely related broad-leaved trees of India.
Cryptolepis buchananii: India.
- Aecidium puttemansianum** P. Henn. (xxx) rust
 Forms rust pustules on stems and petioles of *Jacaranda*; spores dark yellow. Known only in Brazil.
Jacaranda sp.: Brazil.
- Aecidium randiae** P. Henn. (xxx) rust
 Forms yellow rust pustules on dull brown, swollen leaf spots in Brazil.
Randia sp.: Brazil.

- Aecidium rickii** Syd. (xxx) rust
Forms rust pustules on leaves of *Zanthoxylum* in Brazil.
Zanthoxylum sp.: Brazil.
- Aecidium sageretiae** P. Henn. (xxx) rust
Forms rust pustules on leaves of *Sageretia* in China.
Sageretia pycnophylla: China.
- Aecidium schweinfurthii** P. Henn. (xxx) rust
Forms large woody galls on branches and fruits of *Acacia* in Abyssinia.
Acacia seyal: Abyssinia.
- Aecidium simplicius** Arth. & J. R. Johnston (xxx) rust
Forms rust pustules on leaves of *Tabebuia* in Cuba.
Tabebuia rosea: Cuba.
- Aecidium spissum** H. & P. Syd. (xxx) rust
Forms rust pustules on leaves of *Zanthoxylum* in India.
Zanthoxylum sp.: India.
- Aecidium stranvaesiae** Syd. (xxx) rust
Forms rust pustules on leaves of *Stranvaesia* in India.
Stranvaesia nussia: India.
- Aecidium terminaliae** T. S. & K. Ramak. (xxx) rust
Forms rust sori on *Terminalia* leaves in India.
Terminalia bellerica: India.
- Aecidium vinnulum** Jacks. & Holw. (xxx) rust
Forms rust sori on leaves of *Byrsonima* in Brazil.
Byrsonima intermedia: Brazil.
- Aecidium xanthoxylinum** Speg. (xxx) rust
Forms rust sori on leaves of Rutaceae in South America. Distributed in Brazil and Venezuela.
Zanthoxylum sp.: Brazil, Venezuela.
Z. rhoifolia: Venezuela.
- Aecidium xanthoxyli-schinifolii** Diet. (xxx) rust
Forms rust pustules on leaves and petioles of *Zanthoxylum* in China and Japan.
Zanthoxylum alatum: China.
Z. piperitum: Japan.
Z. simulans: China.
- Aldona stella-nigra** Rac. (xx) leaf spot
Causes leaf spot of *Pterocarpus* in the Philippines, Sumatra, and Java. Spots rounded, yellowish brown, 0.5 to 4 cm. across.
Pterocarpus indicus: Philippines.

Aleurodiscus amorphus (Fr.) Rab. (x) **conifer pink disc canker**

Usually is saprophytic on dead suppressed lower branches of fir trees, but occasionally causes cankers on living branches and crowded small trees. Such occurrence appears to be more common at higher elevations or far north toward northern tree limit. It appears as small fingernail-sized, flat, red discs on dead branches and surfaces of cankers. Common as a saprophyte. Distributed generally in North America where true firs grow. Occurs on other conifers also. Known in northern and mountainous Europe. Reported in Siberia.

Abies alba: Germany.

Alternaria tenuis Nees (x) **blight**

Causes leaf spot and blight of numerous hardwoods and of young pine cones in North America, Mauritius, India, China, Tripoli, Tanganyika, Europe, and Argentina. Forms small, brown fungus wefts on the leaf spots.

Cupressus sp.: Tripoli.

C. duclouxiana: Argentina.

Pinus pinea: Argentina, Italy.

Alveolaria cordiae Lagerh. (xxx) **rust**

Causes rust of leaves of *Cordia* in Central America and northern South America.

Cordia cylindrostachya: Bolivia.

C. ferruginea: Colombia, Costa Rica.

C. laxiflora: Colombia.

C. riparia: Guatemala.

C. tarmensis: Peru.

Amazonia peregrina Syd. (x) **powdery mildew**

Forms surface mildew crusts on leaves of *Maesa* in the Philippines.

Maesa denticulata: Philippines.

M. elmeri: Philippines.

M. laxa: Philippines.

Amphichaeta grevilleae Loos (xx) **leaf blotch**

Causes leaf spots of *Grevillea* seedlings varying in size to blotches almost covering the entire leaf. Plants were entirely defoliated. A new disease known only in India and Ceylon.

Grevillea robusta: India, Ceylon.

Angatia eugeniae Syd. (x) **black scab**

Forms black stromata on leaves of *Eugenia* in the Philippines.

Eugenia perpallida: Philippines.

Angiopsora hansfordii (Cumm.) Thirum. & Kern (xxx) **rust**

Forms rust pustules on leaves of *Alchornea* in Uganda.

Alchornea cordifolia: Uganda.

Angiopsora melaena (Syd.) Thirum. & Kern (xxx) **rust**

Forms rust crusts on leaves of *Randia* in Venezuela.

Randia armata: Venezuela.

Angiopsora venezuelana (Syd.) Thirum. & Kern (xxx) rust

Forms fungus crusts on leaves of *Sickingia* in Venezuela.

Sickingia erythroxylon: Venezuela.

Anthomycetella canarii Syd. (xxx) rust

Forms rust pustules on leaves of *Canarium* in the Philippines.

Canarium villosum: Philippines.

Aposphaeria pulviscula Sacc. (xx) willow blight

Causes bark cankers resulting in dying of *Salix* twig tips. Inoculations in wounds succeeded. Distributed in Norway, Netherlands, France, and Italy.

Salix alba var. *vitellina*: Netherlands.

Aristadiplodia pini Shirai (xx) damping-off

Said to cause damping-off of pine seedlings; also roughens bark of branches and forms pustules which break through the dead bark. Known only in Japan.

Pinus densiflora: Japan.

Armillaria mellea (Fr.) Quel. (xx) shoestring root rot

The "honey mushroom" causes this disease of conifers and some broad-leaved species. The fungus lives saprophytically in the soil of forest stands so generally that one is apt to overestimate the damage it causes and overlook investigation of the primary factors weakening the trees and inducing attacks by the fungus. Thick, white, mycelial felty sheets form between bark layers and also between the dead bark and underlying wood. Black, smooth "shoestrings" between the bark and wood are definite indicators of this fungus. Foliage of diseased trees may be thin and paler than normal. Conifers often have exuded pitch at the soil surface, sometimes caked with dirt; and the plaques are straight with parallel hyphae.

Distribution is practically worldwide. Shipment of tree seedlings or infected lumber to other regions should be carefully regulated to prevent carriage of new strains of the fungus to new regions with possible disastrous results.

Abies alba: Czechoslovakia, Denmark, Germany, (Bavaria, Saxony), Great Britain, Italy, Norway, Russia, Yugoslavia.

A. pindrow: India.

A. pinsapo: Spain.

A. sibirica: Siberia.

Acacia decurrens: East Indies, Tanganyika.

A. decurrens var. *dealbata*: Tanganyika.

A. decurrens var. *mollis*: Nyasaland.

A. melanoxylon: Kenya.

A. podalyriaefolia: Tanganyika.

A. pycnantha: South Australia.

Acer sp.: Russia.

A. platanoides: Germany.

A. pseudoplatanus: Denmark, Ireland.

Acrocarpus fraxinifolius: Tanganyika.

Aesculus hippocastanum: Netherlands.

A. pavia: Denmark.

- Albizia gummifera*: Tanganyika.
A. moluccana: Tanganyika.
Alchornea cordifolia: Gold Coast.
Aleurites fordii: Nyasaland.
A. montana: Nyasaland.
Alnus sp.: Great Britain, Norway.
A. glutinosa: Denmark.
A. incana: Denmark.
Araucaria angustifolia: Nyasaland, Union of South Africa.
A. araucana: Great Britain.
A. cunninghamii: Kenya.
Bauhinia sp.: Tanganyika, Uganda.
Betula sp.: Estonia, France, Norway.
B. pubescens: Denmark, Norway.
Blighia sapida: Gold Coast.
Bougainvillea spectabilis: Tanganyika.
Callitris sp.: Nyasaland.
Calodendrum sp.: Tanganyika.
Carpinus betulus: Denmark.
Castanea sp.: Japan.
C. sativa: France, Great Britain.
Casuarina equisetifolia: Mauritius.
Cedrela odorata: Tanganyika, Union of South Africa.
Cedrus deodara: Germany, Great Britain, India, Scotland.
Ceiba pentandra: Africa (Gold Coast).
Chamaecyparis obtusa: Germany.
Chlorophora excelsa: Gold Coast, Tanganyika.
Cinchona officinalis: Gold Coast, Java, Peru.
C. pubescens: Java.
Cocos nucifera: Gold Coast.
Coffea arabica: Congo, Kenya, Tanganyika, Peru, Uganda.
C. canephora var. *robusta*: Congo, West Africa.
Cola acuminata: Gold Coast.
Combretum sp.: Gold Coast.
Crataegus oxyacantha: Denmark.
Cryptomeria japonica: Germany, Great Britain.
Cupressus lusitanica: Tanganyika.
C. macrocarpa: Kenya.
Delonix regia: Nyasaland, Union of South Africa.
Elaeis guineensis: Congo, Gold Coast.
Erythrina sp.: Uganda.
E. lithosperma: Tanganyika.
Erythroxylon coca: Peru.
Eucalyptus sp.: New South Wales.
E. citriodora: Tanganyika.
E. globulus: Tanganyika.
E. paniculata: Union of South Africa.
Eugenia gerrardii: Union of South Africa.
Fagus orientalis: Russia (Caucasus).
F. sylvatica: Belgium, Denmark, Great Britain, Norway, Scotland.
Ficus sp.: Uganda.
F. asperifolia: Gold Coast.
F. carica: France, North Africa.

- Frazinus* sp.: Belgium, Czechoslovakia, Hungary, Scotland.
F. excelsior: Denmark, Great Britain, Ireland.
Funtumia africana: Gold Coast.
Grevillea robusta: Kenya, Tanganyika, Union of South Africa.
Hevea sp.: Congo, Uganda.
H. brasiliensis: Belgian Congo, French Equatorial Africa, Uganda.
Hydnacarpus sp.: Uganda.
Jacaranda sp.: Tanganyika.
Juglans sp.: Czechoslovakia.
J. regia: France, Italy.
Juniperus sp.: Germany.
J. communis: Denmark.
J. procera: Union of South Africa.
J. silicicola: Mauritius.
Khaya sp.: Gold Coast.
Laburnum sp.: Great Britain.
L. anagyroides: Denmark.
Larix sp.: France.
L. decidua: Denmark, Germany, Great Britain, Norway.
L. leptolepis: Belgium, Germany, Great Britain, Russia.
L. sibirica: Sweden.
Mangifera indica: Gold Coast, Nyasaland.
Melia dubia: Union of South Africa.
Morus sp.: France, Japan.
Nothofagus menziesii: New Zealand.
Parinarium mobola: Union of South Africa.
Paulownia tomentosa: Denmark.
Persea americana: Gold Coast.
Picea abies: Austria, Belgium, Denmark, Finland (southern), France, Germany, Great Britain, Norway, Sweden, Russia.
P. glauca: Denmark.
P. mariana: Denmark.
P. omorika: Belgium.
P. smithiana: India.
Pinus caribaea: Mauritius, Nyasaland, Union of South Africa.
P. cembra: Germany.
P. densiflora: Japan.
P. griffithii: Germany, India.
P. halepensis: Scotland.
P. khasya: Nyasaland.
P. mugo: Denmark, Germany.
P. mugo var. *rostrata*: Norway.
P. muricata: New Zealand.
P. nigra: Denmark, France, Germany, New Zealand.
P. nigra var. *poiretiana*: Belgium, Denmark, Great Britain.
P. patula: Nyasaland, Union of South Africa.
P. pinaster: Denmark, France, Germany.
P. radiata: Kenya.
P. roxburghii: Nyasaland, Union of South Africa.
P. sylvestris: Belgium, Czechoslovakia, Denmark, England, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Poland, Russia (Kiev, Chernigov), Scotland, Sweden, Switzerland.

- P. tabulaeformis*: Mauritius.
Pittosporum sp.: Gold Coast.
Populus sp.: Great Britain, Netherlands.
P. × canadensis: Denmark, Netherlands.
P. × canadensis f. *gelrica*: Netherlands.
P. × canadensis var. *serotina*: Netherlands.
P. × canescens: Denmark.
P. deltoides: Italy.
P. tremula: Denmark, Norway, Russia, Yugoslavia.
Quercus sp.: Czechoslovakia, France, Germany, Great Britain, Hungary, Japan, Netherlands, Yugoslavia.
Q. mongolica: Siberia (Amur region).
Q. petraea: France, Germany, Great Britain, Italy, Yugoslavia.
Q. robur: France, Denmark, Germany, Great Britain, Italy, Yugoslavia.
Q. suber: France, Morocco.
Robinia pseudoacacia: Denmark, France.
Salix sp.: Scotland.
S. alba: Denmark.
S. alba var. *calva*: Great Britain.
S. babylonica: Australia (New South Wales), Tanganyika.
S. caprea: Denmark.
Sorbus aucuparia: Denmark.
Spathodea campanulata: Gold Coast.
Syncarpia glomerulifera: Union of South Africa.
Tectona grandis: East Indies.
Terminalia sp.: Gold Coast.
T. arjuna: Mauritius.
Theobroma cacao: Congo, Gold Coast, Mexico, Uganda, West Africa.
Thuja koraiensis: England.
Toona ciliata: Nyasaland, Tanganyika, Union of South Africa.
Ulmus sp.: Czechoslovakia, Great Britain, Hungary, Ireland.
Widdringtonia whytei: Kenya, Nyasaland, Tanganyika.

Armillaria mucida (Fr.) Quel. (xx) **trunk rot**

A white, central-stemmed, glabrous agaric, which most often grows on beech trees with large open wounds. Apparently trunk rot is truly parasitic in some instances. Distributed in Europe and Australia. Rare in North America.

Fagus sylvatica: Belgium, Denmark, Germany, Great Britain.

Ascochyta aesculi Kab. & Bub. (x) **leaf spot**

Causes leaf spots on *Aesculus*, irregular, large, yellow, later turning brown often with yellow margins. Causes defoliation. Known only in Bohemia.

Aesculus hippocastanum: Czechoslovakia (Bohemia, Turnau).

Ascochyta ailanthi Boud. & Fautr. (x) **leaf spot**

Causes ashen spots on leaves of *Ailanthus* in France.

Ailanthus altissima: France (Côte-d'Or).

Ascochyta grandimaculans Kab. & Bub. (x) **leaf spot**

Forms pustules bursting the epidermis on large, dark yellow, irregular leaf spots with reddish-purple margins on *Aesculus* in Bohemia.

Aesculus hippocastanum: Czechoslovakia (Bohemia, Turnau).

Ascochyta heveae Petch (xxx) **leaf spot**

Forms erumpent pustules and causes marginal white or brownish white leaf spots with narrow red-brown margins on *Hevea*. Distributed in India, Ceylon, French Equatorial Africa, Congo, and Gold Coast.

Hevea brasiliensis: Ceylon, Congo, French Equatorial Africa, Gold Coast, India.

Ascochyta heveana Saccas (xxx) **leaf spot**

Causes leaf spots on *Hevea* with concentric brownish zones, corresponding to the distribution of the fungus pustules. Known in French Equatorial Africa.

Hevea brasiliensis: French Equatorial Africa.

Ascochyta infortunata Ramak. (x) **leaf spot**

On leaves of *Clerodendrum* in India.

Clerodendrum infortunatum: India.

Ascochyta juglandis Boltsh. (xxx) **leaf spot**

Forms erumpent pustules on grey-brown leaf spots, the centers of which fall out. Distributed generally in Europe on *Juglans regia* and in North America on *J. regia* and *J. cinerea*.

Juglans regia: Bulgaria, Great Britain, Italy.

Ascochyta mabiana Sacc. (x) **leaf spot**

Forms erumpent pustules on dull brown spots with darker margins on *Maba* in Eritrea.

Maba abyssinica: Eritrea.

Ascochyta mangiferae Batista (xxx) **leaf spot**

Associated with minute spots on the basal part of mango leaves. The spots merge later into large discolored areas and cause defoliation. Known in Brazil.

Mangifera indica: Brazil.

Ascochyta metulispora Berk. & Br. (x) **leaf spot**

Forms erumpent pustules on round brown leaf spots on *Fraxinus* in Scotland.

Fraxinus excelsior: Great Britain, Scotland.

Ascochyta morifolia Saw. (x) **leaf spot**

Forms conidial pustules on leaf spots on *Morus* in Formosa.

Morus alba: Formosa.

Ascochyta myrticola Maire & Sacc. (x) leaf spot

Forms erumpent pustules on reddish leaf spots with dark purple margins on *Myrtus* in Corsica and Italy.

Myrtus communis: Corsica, Italy.

Ascochyta pallida Kab. & Bub. (x) leaf spot

On brown spots on leaves of *Acer* in Bohemia.

Acer platanoides: Czechoslovakia (Bohemia, Turnau).

Ascochyta paulowniae Sacc. & Brun. (xxx) leaf spot

Forms erumpent pustules and causes a leaf spot of *Paulownia* in France and Czechoslovakia. Also reported in North America in Wisconsin and District of Columbia.

Paulownia tomentosa: Czechoslovakia.

Ascochyta phellodendri Kab. & Bub. (xxx) leaf spot

Forms erumpent pustules on leaf spots; brown, often obscurely zoned and confluent, covering the entire leaf. Known in Bohemia.

Phellodendron amurense: Czechoslovakia (Bohemia, Turnau).

Ascochyta piniperda Lindau (xxx) conifer leaf spot

Forms erumpent pustules and causes damping-off of spruce and other coniferous seedlings. Also infects leaves and twigs of conifers. Reported in Maine and North Carolina and is widely distributed in Europe.

Larix decidua: Czechoslovakia.

Picea sp.: Belgium, Germany.

P. abies: Belgium, Czechoslovakia, Germany, Norway, Poland, Scotland, Sweden.

P. sitchensis: Poland, Scotland.

Pseudotsuga menziesii: Germany.

Ascochyta populorum (Sacc. & Roum.) Vogl. (x) leaf spot

On leaf spots of *Populus* in Italy.

Populus × canadensis: Italy.

Ascochyta prosopidicola Speg. (x) leaf spot

Associated with large leaf spots on *Prosopis* in Argentina.

Prosopis sp.: Argentina (Jujuy).

Ascochyta quercus Sacc. & Speg. (x) leaf spot

Erumpent pustules form on leaf spots on *Quercus* in Italy.

Quercus ilex: Italy.

Ascochyta tiliae Kab. & Bub. (x) leaf spot

Forms erumpent pustules on yellow-gray to ashen leaf spots with purple-brown margins on *Tilia* in Czechoslovakia, Germany, and British Isles.

Tilia dasystyla: Czechoslovakia (Bohemia, Turnau).

T. platyphyllos: Great Britain.

Ascochyta translucens Kab. & Bub. (x) willow leaf spot

Forms erumpent pustules on confluent, broad, gray spots on leaves of *Salix* in Bohemia.

Salix caprea: Czechoslovakia (Bohemia, Turnau).

Ascochyta tremulae Thuem. (x) leaf spot

Forms erumpent pustules on small grayish leaf spots with dull brown margins on *Populus* in Austria.

Populus tremula: Austria.

Asterina alchorneae Syd. (xxx) black mildew

Forms black mildew on leaves of *Alchornea* in Africa. Known in the Gold Coast.

Alchornea cordifolia: Gold Coast.

Asterina antioquensis Toro (xxx) black mildew

Forms black mildew on leaves of *Miconia* in South America. Distributed in Colombia.

Miconia ciliata: Colombia.

M. milleflora: Colombia.

Asterina assimilis Syd. (xxx) black mildew

Forms black mildew on leaves of *Eugenia* in Amboina.

Eugenia caryophyllata: Moluccas (Amboina).

Asterina balii Syd. (xxx) black mildew

Forms black mildew on leaves of *Alangium* in India.

Alangium salviifolium: India.

Asterina breyniaecola Trott. (xxx) black mildew

Forms black mildew spots on the upper side of leaves of *Breynia* in the Philippines.

Breynia acuminata: Philippines.

Asterina carbonacea Cke. (xxx) black mildew

Forms black mildew spots on leaves of broad-leaved trees in warm regions. Distributed in India and Puerto Rico.

Anacardium sp.: Puerto Rico.

Miconia prasina: Puerto Rico.

Asterina chrysophylli P. Henn. (xxx) black mildew

Forms black mildew on leaves of broad-leaved species in tropical regions. Known in Brazil and Puerto Rico.

Chrysophyllum oliviforme: Puerto Rico.

Miconia prasina: Puerto Rico.

Asterina colliculosa Speg. (xxx) black mildew

Forms black fungus areas on leaves of *Eugenia*. Known in Brazil and the Philippines.

Eugenia cumini: Philippines.

- Asterina colubrinae** Ell. & Kelsey (xxx) **black mildew**
 Forms black mildew on leaves of *Colubrina* in St. Croix Island, Virgin Islands.
Colubrina reclinata: Virgin Islands (St. Croix).
- Asterina congesta** Cke. (xxx) **black mildew**
 Forms black mildew on leaves on *Santalum* in India.
Santalum album: India.
- Asterina crebra** Syd. (xxx) **black mildew**
 Forms small, black mildew spots, which grow larger until nearly the entire leaf surface is covered. On *Opilia* in India.
Opilia amentacea: India.
- Asterina densa** Syd. (xxx) **black mildew**
 Forms dense mycelial brown mats on leaves of *Pittosporum* in the Philippines.
Pittosporum pentandrum: Philippines.
- Asterina diaphorella** Syd. (xxx) **black mildew**
 Forms black mildew on leaves of *Sideroxylon*. Distributed in the Philippines and Moluccas.
Sideroxylon sp.: Moluccas (Amboina).
S. ferrugineum: Philippines.
- Asterina dilabens** Syd. (xxx) **black mildew**
 Forms black mildew on leaves of broad-leaved trees in Puerto Rico.
Rhytidophyllum auriculatum: Puerto Rico.
Tetrazygia elaeagnoides: Puerto Rico.
- Asterina diplocarpa** Cke. (xxx) **black mildew**
 Forms black mildew on leaves of several broad-leaved trees. Distributed in the West Indies, Venezuela, and Peru.
Clusia gundlachii: Puerto Rico.
- Asterina elaeocarpi** Syd. (xxx) **black mildew**
 Forms black mildew on leaves of *Elaeocarpus* in the Philippines.
Elaeocarpus argenteus: Philippines.
E. pendulus: Philippines.
- Asterina escharoides** Syd. (xxx) **black mildew**
 Forms black mildew on leaves of broad-leaved trees in the Philippines.
Heterostemma angustilobum: Philippines.
Pittosporum clementis: Philippines.
P. ramiflorum: Philippines.
- Asterina fawcettii** Ryan (xxx) **black mildew**
 Forms black mildew on leaves of *Eugenia* on Mona Island, Puerto Rico.
Eugenia myrtilloides: Puerto Rico (Mona Island).

Asterina inaequalis Mont. (xxx) black mildew

Forms black fungus pustules on leaves of broad-leaved trees in French Guiana and Puerto Rico.

Hirtella triandra: Puerto Rico.

Asterina indica Syd. (xxx) black mildew

Forms dark fungus pustules on leaves of *Symplocos* in India.

Symplocos sp.: India (Darjeeling).

Asterina lawsoniae P. Henn. & Nyman (xxx) black mildew

Forms black fungus crusts on leaves of *Lawsonia*. Distributed in India, Gold Coast, and Philippines.

Lawsonia inermis: India, Gold Coast, Philippines.

Asterina laxiuscula Syd. (xxx) black mildew

Forms fungus pustules on leaves of *Sideroxylon* in the Philippines.

Sideroxylon angustifolium: Philippines.

S. apoensis: Philippines.

S. ferrugineum: Philippines.

Asterina lobata Syd. (xxx) black mildew

Forms brown fungus pustules on black spots on leaves of *Picrasma* and *Eugenia*. Known in the Philippines.

Eugenia sp.: Philippines

Picrasma philippinensis: Philippines.

Asterina lophopetali Rehm (xxx) black mildew

Forms black discoidal spots on the leaves of *Lophopetalum*. Reported from the Philippines.

Lophopetalum toxicum: Philippines.

Asterina mandaquiensis P. Henn. (xxx) black mildew

Forms black discoidal crusts on the upper leaf surface of *Eugenia* in Venezuela and Brazil.

Eugenia sp.: Venezuela.

Asterina mate Speg. (xxx) black mildew

Forms thin fungus discs on leaves of *Ilex* in Argentina.

Ilex paraguariensis: Argentina.

Asterina melastomatis (Lév.) Mont. (xxx) black mildew

Forms black mildew on leaves in Colombia and Dominican Republic.

Heterotrichum umbellatum: Dominican Republic.

Miconia sp.: Colombia.

Asterina miconiae Th. (xxx) black mildew

Forms black mildew pustules on leaves of *Miconia*. Known in Brazil and Colombia.

Miconia sp.: Brazil.

Asterina mysorensis Hansf. & Thirum. (xxx) black mildew

Forms black mildew fungus pustules on *Ficus* leaves. Known only in India.

Ficus sp.: India.

- Asterina nothopegiae** Ryan (xxx) **black mildew**
Forms black mildew fungus pustules on leaves in India.
Nothopegia colebrookiana: India.
- Asterina pasaniae** Henn. (xxx) **black mildew**
Forms black fungus crusts on leaves of *Castanopsis*. Known in Japan.
Castanopsis cuspidata: Japan.
- Asterina pleuriporus** Ryan (xxx) **black mildew**
Forms black mildew fungus pustules on leaves of *Shorea* in India.
Shorea talura: India.
- Asterina porriginosa** Syd. (xxx) **black mildew**
Forms black fungus mats on the upper side of leaves of *Ilex* in the Philippines.
Ilex cymosa: Philippines.
- Asterina prosopidis** (Ell. & Ev.) Farlow (xxx) **black mildew**
Forms black mildew fungus pustules on leaves of *Prosopis* in Mexico.
Prosopis juliflora: Mexico.
- Asterina pycnanthi** Hansf. (xxx) **black mildew**
Forms thin, smooth, black fungus patches on leaves of *Pycnanthus* in Uganda.
Pycnanthus kombo: Uganda.
- Asterina spathulata** (Ryan) Seaver & Toro (xxx) **black mildew**
Forms dark fungus pustules on leaves of *Miconia* in Puerto Rico.
Miconia racemosa: Puerto Rico.
M. thomasiana: Puerto Rico.
- Asterina tenuissima** (Petch) Th. (xxx) **black mildew**
Forms fungus pustules on green shoots and fruits of *Hevea*. Known in Ceylon, India, and Malaya.
Hevea brasiliensis: Ceylon, India, Malaya.
- Asterina uribei** Toro (xxx) **black mildew**
Forms fungus pustules on dark colored leaf spots of *Miconia*. Known in Colombia and Venezuela.
Miconia ciliata: Venezuela.
M. toroi: Colombia.
- Asterina vagans** Speg. (xxx) **black mildew**
Forms fungus pustules on leaves. Known in Brazil, Colombia, and Puerto Rico.
Cordia ferruginea: Colombia.
- Asterinella cylindrotheca** Th. (xxx) **black mildew**
Forms black fungus pustules on leaves of *Eugenia*. Known in Brazil and Puerto Rico.
Eugenia sp.: Puerto Rico.

- Asterinella dipterocarpi** Syd. (xxx) **black mildew**
Forms black fungus pustules on leaves of *Dipterocarpus* in the Philippines.
Dipterocarpus vernicifluus: Philippines.
- Asterinella dysoxylis** Syd. (xxx) **black mildew**
Forms black mildew on leaves of *Dysoxylum* in the Philippines.
Dysoxylum cumingianum: Philippines.
- Asterinella hiugensis** Hino & Hidaka (xxx) **black mildew**
Forms black mildew on bamboo stems in Japan.
Phyllostachys bambusoides: Japan.
- Asterinella luzonensis** Syd. (xxx) **black mildew**
Forms black mildew on leaves of *Shorea* in the Philippines.
Shorea polysperma: Philippines.
- Asterinella puiggarii** (Speg.) Th. (xxx) **black mildew**
Forms black mildew on leaves of *Eugenia* in Chile.
Eugenia apiculata: Chile.
- Asterodthis solaris** (Kalchb. & Cke.) Th. (xxx) **sooty mold**
Forms a sooty fungus coating on seedling leaves of *Olea* in South Africa.
Olea laurifolia: Union of South Africa.
- Asteroma aceris** Rob. & Desm. (xxx) **maple black spot**
Forms black spots with slender, flexuous, reddish-brown fibrils radiating in all directions on *Acer* leaves. Reported in England and France.
Acer campestre: Great Britain.
- Asteroma betulae** Rob. & Desm. (xxx) **birch black spot**
Forms black leaf spot on *Betula* leaves. Distributed in France, Belgium, Netherlands, Germany, and England.
Betula sp.: Great Britain.
- Asteroma salicis** Rob. & Desm. (xxx) **willow black spot**
Forms dark spots with radiating black fibrils immersed in *Salix* leaves. Distributed in England, Belgium, Denmark, Germany, Austria, and Italy.
Salix fragilis: Great Britain.
- Asteroma tiliae** Lib. (xxx) **black spot**
Forms black spots on linden leaves. Distributed in United States and in Russia.
Tilia cordata: Russia (Kazan).
- Asteroma ulmi** Klotzsch (xxx) **elm leaf spot**
Causes a brown leaf spot of *Ulmus* in Europe. Reported in Wisconsin, Great Britain, and Japan.
Ulmus carpinifolia: Japan.
U. glabra: Great Britain.
U. procera: Great Britain.

Asterostomella dispar Speg. (xxx) **black mildew**

Forms black mildew pustules on living leaves of *Styrax*. Reported in Brazil and Argentina.

Styrax leprosa: Argentina.

Auerswaldia copelandi Syd. (xxx) **tar spot**

Forms tar spots on leaves of *Caryota* in the Philippines.

Caryota sp.: Philippines (Mindanao).

Auerswaldia dalbergiae P. Henn. (xxx) **tar spot**

Causes tar spot on yellowish leaf spots of *Dalbergia* in Tanganyika.

Dalbergia lactea: Tanganyika (Kilimanjaro).

Auricularia auricularis (S. F. Gray) Martin (xx) **earlike jelly fungus**

In wet weather forms soft, brownish outgrowths on dead, dying, and injured woody-stemmed plants. They somewhat resemble human ears in shape and size. When dry they shrink and become tough and leathery. The fungus is a saprophyte but can enter wounds on living trees and become pathogenic. It occurs on numerous broad-leaved species and conifers and is known to be widely distributed in the Temperate Zones. Distributed in North America, West Indies, South America, Europe, Philippines, Siberia, India, Japan, Africa, Australia, Guam, and Formosa.

Morus nigra: Mauritius.

Auricularia mesenterica Fr. (xx)

Resembles *Auricularia auricularis* in general appearance and size. Normally a saprophyte, but under certain conditions may be a serious pathogen. The cork oak, when the corky bark is stripped off, is open to infection of the exposed tissues, and this fungus is one among a number of injurious fungi, of like habits, which cannot gain entry to uninjured trees. The fungus is distributed widely from Florida to Argentina, Europe, Indonesia, and Australia.

Quercus suber: Morocco.

Auricularia polytricha (Mont.) Sacc. (xx)

Similar to *Auricularia auricularis* in size and general appearance; also in becoming pathogenic to injured trees with wounds so large that they cannot heal completely in a short time. The fungus is known from New Mexico and Florida to Argentina, and in Africa, Asia, Australia, and the Pacific Islands.

Parkia javanica: Philippines.

Bagcheea castanea Müller & Menon (xxx) **chestnut leaf spot**

On gray, necrotic spots with brown margins on *Castanea*. It forms circular stromata about 500 microns across on the upper leaf surface. Known only in India.

Castanea sp.: India.

Bagnisiopsis amadelpha (Syd.) Petr. (xxx) leaf spot

Forms black fungus pustules on yellow to brown leaf spots on *Miconia*, *Clidemia*, and *Tibouchina*. Distributed in Costa Rica, Colombia, and Venezuela.

Miconia caudata: Colombia.

M. furfuracea: Costa Rica.

M. granulosa: Colombia.

Bagnisiopsis leandrae (Syd.) Miller & Burton (xxx) leaf spot

Forms black fungus pustules on the upper leaf surface of trees in Brazil.

Leandra cordifolia: Brazil.

Miconia sp.: Brazil.

Bagnisiopsis miconicola Orejuela (xxx) tar spot

Forms black fungus pustules, verrucose with setalike processes causing small, dark spots on leaves of *Miconia* in Colombia.

Miconia squamulosa: Colombia.

Bagnisiopsis peribebuyensis (Speg.) Th. & Syd. (xxx) tar spot

Forms black fungus stromata variable in form, smooth to scabrous, on living leaves of *Miconia* and other Melastomaceae. Distributed in Colombia, Brazil, Paraguay, Venezuela, Panama, Guatemala, Costa Rica, Dominican Republic, and Puerto Rico.

Miconia ambigua: Venezuela.

M. argentea: Costa Rica, Guatemala.

M. beurlingii: Costa Rica.

M. candolleana: Brazil.

M. laevigata: Puerto Rico.

M. macrophylla: Venezuela.

M. prasina: Dominican Republic, Puerto Rico, Venezuela.

M. versicolor: Colombia.

Tetrazygia elaeagnoides: Puerto Rico.

Bagnisiopsis tijucensis Th. & Syd. (xxx) tar spot

Forms black fungus pustules on leaves of *Blakea*, *Miconia*, and *Tibouchina*. Distributed in Dominican Republic, Colombia, Venezuela, and Brazil.

Blakea sp.: Venezuela.

Miconia sp.: Dominican Republic.

M. flammea: Brazil.

M. lepidota: Brazil.

M. macrophylla: Colombia.

M. minutiflora: Venezuela.

M. ulmarioides: Venezuela.

Bagnisiopsis toledoii Chardon (xxx) tar spot

Forms black spore pustules with prominent black setalike processes on *Heterotrichum* and *Miconia*. Distributed in Puerto Rico and Venezuela.

Heterotrichum cymosum: Puerto Rico.

Miconia grandifolia: Venezuela.

M. laevigata: Puerto Rico.

M. macrophylla: Venezuela.

M. prasina: Venezuela.

Bondarzewia perniciosa Singer (xx) **trunk rot**

Forms deep yellow pilei, concentrically depressed, tomentose, up to 16 cm. across, in compound, multipileate masses, up to 1 meter across. Texture tough, light yellow to white; on trunks of living trees of *Nothofagus*. Is termed very damaging to the most valuable timber resource of Patagonia.

Nothofagus dombeyi: Argentina.

Botryconis pallida H. & P. Syd. (xxx) **powdery gall**

Forms whitish powdery galls on fruits of *Ocotea* in Brazil.

Ocotea pulchella: Brazil.

Botryodiplodia penzigii Petr. & Syd. (xx) **poplar canker**

Associated with stem cankers of *Populus* in Belgium, France, and Netherlands.

Populus sp.: Belgium, Netherlands.

Botryosphaeria dothidea (Fr.) Ces. & de N. (xx) **anthracnose**

Conidial pustules form on anthracnose lesions on cones of *Araucaria* in New Caledonia.

Araucaria rulei: New Caledonia.

Botryosphaeria ribis (Fr.) Gross. & Dug. (xxx) **canker**

Causes cankers on twigs and branches of many broad-leaved and coniferous trees resulting in dieback of distal parts. Causes slight damage. Distributed in the United States, Argentina, Hawaii, Portugal, Italy, South Africa, Senegal, Mauritius, and Nyasaland.

Aleurites montana: Nyasaland.

Araucaria araucana: Mauritius.

A. cunninghamii: Mauritius.

Calophyllum tacamahaca: Mauritius.

Grevillea robusta: Nyasaland.

Leucadendron argenteum: Union of South Africa.

Salix caprea: Argentina.

Botryosphaeria ribis var. **chromogena** Shear, Stevens & Wilcox (xxx) **dieback**

Similar to *Botryosphaeria ribis*, but distinctly more pathogenic and damaging. Distribution is general in the United States; reported from Cuba and Hawaii.

Aleurites moluccana: Hawaii.

Eucalyptus sp.: Hawaii.

Leucaena glauca: Hawaii.

Mangifera indica: Hawaii.

Pipturus albidus: Hawaii.

Schinus molle: Hawaii.

Botryosphaeria tamaricis (Cke.) Th. & Syd. (xx) **tamarisk dieback**

Causes dieback of branches of *Tamarix* trees and seedlings 2 years old. Proved a wound parasite. Distributed in South Carolina, Argentina, and India.

Tamarix gallica: Argentina, India.

Botrytis cinerea Fr. (xx)**graymold blight**

Causes blight and decay of young seedlings of conifers and broad-leaved trees, over practically the entire world where green plants grow. It is greatly favored by high air moisture. Commonly it exists as a saprophyte but occasionally becomes pathogenic and can inflict considerable damage. It forms a characteristic dense gray mold on blighted plant parts in moist situations. Abundant conidia are easily windborne for unknown distances. An older tree may be attacked wherever injuries furnish ready entry to inner tissues.

Abies alba: Czechoslovakia, Austria.

Aesculus hippocastanum: Germany.

Chamaecyparis obtusa: Japan.

Coffea arabica: Tanganyika.

Cotoneaster frigida: Great Britain.

Cryptomeria japonica: Japan.

Eucalyptus alba: Argentina.

E. botryoides: Argentina.

E. camaldulensis: Argentina.

E. citriodora: Argentina.

E. globulus: Kenya.

E. tereticornis: Argentina.

Larix leptolepis: Japan.

Metasequoia glyptostroboides: Sweden.

Morus alba: Russia (Tashkent.)

Picea sp.: Germany, Poland.

P. abies: Belgium, Denmark.

Pinus densiflora: Japan.

P. sylvestris: Czechoslovakia.

Sophora flavescens: China.

Brunchorstia pini Allesch. (x)**dieback**

Associated with dieback of pines. Attacks are induced by drought. Old stands are heavily attacked, and the disease spreads to younger stands. Known in Austria and Turkey.

Pinus halepensis: Turkey (Thrace).

P. nigra: Turkey.

P. sylvestris: Austria.

Bubakia cingens (Syd.) Mund. (xxx)**rust**

Forms rust pustules on leaves of *Bridelia* in India and Pakistan.

Bridelia tomentosa: India, Pakistan.

Bubakia ehretiae (Hirat.) S. Ito (xxx)**rust**

Forms rust pustules on leaves and fruits of *Ehretia* in China, India, and New Guinea.

Ehretia sp.: New Guinea.

E. acuminata: India.

Bubakia erythroxylois Cumm. (xxx)**rust**

Forms rust pustules on leaves of *Erythroxylois*. Distributed in Bolivia, Brazil, Peru, and Venezuela in South America; also in the West Indies in Cuba, Puerto Rico, and Granada.

Erythroxylois sp.: Venezuela, Virgin Islands (St. Croix).

E. areolatum: Puerto Rico, Mona Island, St. Croix.

E. brevipes: Puerto Rico, Mona Island, St. Croix.

E. coca: Bolivia, Peru.

E. havanense: Cuba, Granada.

E. ovalifolium: Brazil.

E. pelleterianum: Brazil.

Caeoma clerodendri Rac. (xxx) rust

Forms yellow rust pustules on the lower leaf surface of *Clerodendrum* in Java.

Clerodendrum fragrans: Java.

Caeoma deformans (Berk. & Br.) Tub. (xxx) rust

Forms witches'-brooms on branches and young shoots of *Thuja* and *Thujopsis*. Each twig of the deformed shoots terminates in a hemispherical saucer-shaped caeoma disc discovered with epidermis. Later, the epidermis bursts and exposes dusty yellow fungus spores. Known in Japan only.

Thuja standishii: Japan.

Thujopsis dolabrata: Japan.

Caeoma sanctae-crucis Espinosa (xxx) rust

Forms rust pustules on leaves of *Araucaria* in Chile.

Araucaria araucana: Chile.

Caliciopsis nigra (Schrad. ex. Fr.) Fitzp. (xx) juniper gall

Associated with galls on branches of *Juniperus*, forming black fruiting bodies on stromata in crevices in the bark of the galls. Distributed in the United States, Europe, and East Africa.

Juniperus communis: Switzerland.

J. phoenicea: Yugoslavia.

J. procera: Kenya.

J. sabina: France.

Caliciopsis pinea Pk. (xxx) pine canker

Forms small, rounded, flat cushions beneath the surface of young bark of pines and occasionally other conifers. Slender, long-necked perithecia develop on the cushions mentioned above. Distributed in the United States and Germany.

Abies sp.: Germany.

Pinus mugo var. *pumilio*: Germany.

Caliciopsis tiliae Arn. (xx) linden canker

Forms fungus stromata in crevices in the bark of *Tilia* from which protrude clusters of short tubular beaks resembling black spines. Known only in France.

Tilia cordata: France.

Calonectria pyrochroa Desm. (xx) twig blight

Forms reddish-yellow, globular perithecia. Associated with twig blight of *Platanus*. Known in France and Germany.

Platanus sp.: France, Germany.

P. occidentalis: Germany.

Calonectria rigidiuscula (Berk. & Br.) Sacc. (xx) **dieback**

Forms globular bright-colored perithecia. A wound parasite of numerous broad-leaved trees of the tropics. Distributed in southern United States, Philippines, Madagascar, Ivory Coast, and West Africa.

Bombax buonopozense: West Africa.

Ceiba pentandra: West Africa.

Celtis zenkeri: West Africa.

Cola acuminata: West Africa.

C. cordifolia: West Africa.

C. togoensis: West Africa.

Desplatzia lutea: West Africa.

Erythrina altissima: West Africa.

Hevea brasiliensis: French Equatorial Africa.

Khaya grandifoliola: West Africa.

Newbouldia laevis: West Africa.

Picralima nitida: West Africa.

Spathodea campanulata: West Africa.

Sterculia rhinopetala: West Africa.

S. tragacantha: West Africa.

Theobroma cacao: Madagascar, West Africa, Ivory Coast.

Triplachiton scleroxylon: West Africa.

Calostilbe striispora (Ell. & Ev.) Seaver (xx) **bark rot**

Causes bark rot of numerous broad-leaved trees in American tropics. A wound parasite, sometimes inflicting heavy damage. Distributed in Nicaragua, West Indies, Trinidad, and Venezuela; also reported in Belgian Congo.

Cecropia peltata: Trinidad.

Enterolobium cyclocarpum: Venezuela.

Erythrina glauca: Trinidad, Venezuela.

E. mitis: Trinidad.

E. poeppigiana: Trinidad, Venezuela.

E. velutina: Trinidad.

Hevea brasiliensis: Trinidad.

Theobroma cacao: Jamaica, Trinidad, Venezuela.

Camptomeris albizziae (Petch) Mason (x)

Conidiophores emerging through stomata. Considered pathogenic to leaves of *Albizia* in Ceylon, Gold Coast, Sierra Leone, and Uganda.

Albizia coriaria: Uganda.

A. ferruginea: Gold Coast, Sierra Leone.

A. grandibracteata: Uganda.

A. lebbek: Ceylon.

Camptomeris albizziicola (Thirum. & Naras.) Bessey (x) **leaf spot**

Forms brownish fungus pustules on small reddish spots on living leaves of *Albizia* in India.

Albizia lebbek: India.

Camptomeris calliandrae Syd. (x) leaf cast

Conidia borne on large hypostromae emerging from stomata. Associated with falling of leaves of *Calliandra* in Costa Rica.

Calliandra similis: Costa Rica.

Camptomeris leucaenae (F. L. Stevens & Dalbey) Syd. (x)

Forms dark brown fungus pustules on leaves of *Leucaena*. Distributed in Puerto Rico, Dominican Republic, and Venezuela.

Leucaena glauca: Puerto Rico, Venezuela.

Camptomeris martynii Bessey (x)

Forms brownish fungus pustules on living leaves of *Acacia* in Jamaica.

Acacia villosa: Jamaica.

Camptomeris verruculosa (Syd.) Bessey (x) leaf spot

Forms pale yellow-brown fungus pustules on discolored spots on living leaves of *Acacia* in Union of South Africa.

Acacia decurrens: Union of South Africa.

Capsotrichum cladosporioides Sacc. (x) leaf spot

Associated with large, rounded leaf spots with dark-olive edges on *Trichilia* in Eritrea.

Trichilia emetica: Eritrea.

Catacauma acaciae Th. & Syd. (xxx) tar spot

Forms small, shiny, black spots on the upper leaf surface. Known in India.

Acacia leucophloea: India (Madras).

Catacauma elaeocarpi T. S. & K. Ramak. (xxx) tar spot

Forms tar spots on living leaves of *Elaeocarpus* in India.

Elaeocarpus munroi: India.

E. oblongus: India.

Catacauma eugeniicola Chardon (xxx) tar spot

Forms black crustlike fungus masses 3 to 5 mm. across on leaves of *Eugenia* in Venezuela.

Eugenia sp.: Venezuela.

Catacauma hammari (P. Henn.) Th. & Syd. (xxx) tar spot

Forms tar spots on leaves of *Machaerium* in Brazil.

Machaerium sp.: Brazil.

Catacauma huberi (P. Henn.) Th. & Syd. (xxx) tar spot

Forms black crusts on leaves of *Hevea*, defoliating seedlings. Distributed in Brazil, Peru, and Venezuela.

Hevea benthamiana: Venezuela.

H. brasiliensis: Brazil, Peru.

H. confusa: Brazil.
H. discolor: Brazil.
H. guianensis: Peru.
H. lutea: Peru.

Catacauma ingae Chardon (xxx) tar spot

Forms tar spots on the lower surface of leaves of *Inga* in Colombia.
Inga edulis: Colombia.

Catacauma mucosum (Speg.) Th. & Syd. (xxx) tar spot

Forms tar spots on leaves of *Arecastrum* in Brazil.
Arecastrum romanzoffianum: Brazil.

Catacauma ocoteae F. L. Stevens. (xxx) tar spot

Forms tar spots on leaves of *Ocotea* in Puerto Rico.
Ocotea leucoxydon: Puerto Rico.

Catacauma rhopalinum (Mont.) Th. & Syd. (xxx) tar spot

Forms black, shiny, raised rugose spots on the upper leaf surface of *Roupala*. Distributed in Colombia, Venezuela, Peru, French Guiana, and Brazil.
Roupala montana: Colombia.

Catacauma robinsonii Syd. (xxx) tar spot

Forms tar spot on leaves of *Ficus* in Amboina.
Ficus sp.: Moluccas (Amboina).

Catacauma torrendiella Batista (xxx) tar spot

Causes necrosis of leaves, rachides, peduncles, and fruits of *Cocos* in Brazil. The affected leaves are covered with wartlike crusts up to 1,300 microns across, originating as small, black, carbonaceous swellings that expand and coalesce while the surrounding area becomes yellowish. Many leaves die and hang on the stem. Known in Brazil.
Cocos nucifera: Brazil.

Catacauma venezuelensis (Syd) Chardon (xxx) black spot

Forms black stromata 2 mm. in diameter on the upper side of leaves of *Machaerium*. Distributed in Venezuela, Costa Rica, Trinidad, and Brazil.

Machaerium acutifolium: Brazil.
M. humboldtianum: Venezuela.
M. moritzianum: Venezuela.
M. robiniaefolium: Venezuela.

Catacaumella miconiae (P. Henn.) Th. & Syd. (xxx) black spot

Forms shiny black leaf spots on *Miconia*. Distributed in Brazil and Venezuela.

Miconia sp.: Brazil.
M. rubiginosa: Venezuela.

Catenulopsora flacourtiae Mund. & Thirum. (xxx)**Flacourtia rust**Forms rust pustules on leaves of *Flacourtia* spp. in India.*Flacourtia indica*: India.*F. sepiaria*: India.**Catenulopsora grewiae** Thirum. & Mund. (xxx)**rust**Forms rust pustules on leaves of *Grewia* in India.*Grewia betulaefolia*: India.**Cenangium ferruginosum** Fr. (xx)**pine dieback**

Formerly confused with *Cenangium abietis* (Fr.) Rehm. Associated with dieback of pine twigs. The fungus follows insect injury by leaf mining at the base of needles, enabling spread into the bark of the twigs and dieback of the distal end. Distributed generally as a saprophyte in North America and Europe. Occasionally it becomes epidemic as a parasite and may do much damage, especially on exotics. It may attack firs and spruces, but chiefly attacks pines.

Abies alba: Germany, Switzerland.*Picea glauca*: Switzerland.*Pinus mugo*: Germany, Norway.*P. mugo* var. *rostrata*: Norway.*P. nigra*: Czechoslovakia, Germany, Norway.*P. nigra*: var. *poiretiana*: Great Britain.*P. sylvestris*: Germany, Great Britain, Norway, Poland, Sweden.*P. thunbergii*: Japan.**Cenangium kazachstanicum** Schwarzm. (x)**pine dieback**

Associated with severe dieback of *Pinus sylvestris*; in 1938 to 1942 it caused heavy mortality in Kazakhstan, U.S.S.R.

Pinus sylvestris: Russia (Kazakhstan).**Centrospora acerina** (Hartig) Newhall (xxx)**maple seedling blight**

Causes death and blackening of spots on stems, cotyledons, and first leaves of young maple seedlings in Europe and North America. The fungus can live saprophytically on humus in the soil.

Acer sp.: Japan.*A. opalus*: Europe.*A. platanoides*: Czechoslovakia, Germany, Poland.*A. pseudoplatanus*: France, Germany.**Cephalosporium deformans** Crandall (xxx)**wilt**

Initial infection occurs on young leaves of *Lonchocarpus* before they reach full size. A tiny chlorotic spot between veins about 1 to 2 mm. across develops a lavender halo and becomes necrotic, and spore pustules form on the lower side of the leaf. If infection occurs on the midrib, the lesion rapidly elongates. When older leaves are infected the entire leaf does not die at once. Known in Peru.

Lonchocarpus utilis: Peru.

Ceratocystis coerulescens (Münch) Bakshi (xx) **sap stain**

Forms globular perithecia with long tubular necks. Causes blue stain of sapwood in living coniferous trees with wounds, such as "blazes" and tapped faces for gum extraction, which expose living wood for an indefinite length of time. It grows rapidly and fruits freely on the surface of infected wood. Distributed in temperate North America in freshly sawn lumber of coniferous and broad-leaved trees wherever high air moisture is common. Also in Europe from Scotland to Sweden and Russia, southward to Italy and Spain.

Picea sp.: Russia.

P. abies: Sweden.

Pinus sp.: Russia.

P. sylvestris: Sweden.

Ceratocystis fimbriata Ell. & Halst. (xx) **canker**

See *Ceratocystis coerulescens* for general characters of fruits. Causes severe necrosis of trunks and branches of numerous important broad-leaved trees in tropical and subtropical regions. Distributed in the United States, Mexico, Central America, West Indies, South America, Malaya, and Java.

Cinchona officinalis: Guatemala.

C. pubescens: Guatemala.

Coffea arabica: Colombia, Guatemala, Venezuela.

C. arabica var. *bourbon*: Guatemala.

Hevea brasiliensis: Brazil, Costa Rica, Java, Malaya, Mexico.

Pimenta dioica: Jamaica.

Theobroma cacao: Venezuela.

Ceratocystis ips (Rumb.) C. Moreau (xx)

Associated with bark beetles in dying of plantation trees of *Pinus*. Distributed in North America, Germany, Poland, Sweden, and Japan.

Pinus densiflora: Japan.

P. sylvestris: Poland.

P. thunbergii: Japan.

Ceratocystis minor (Hedgc.) Hunt (xx) **blue stain**

Associated with bark beetles in living pine trees and newly felled logs and lumber. Kills trees by cutting off the water supply to the crown of the tree. Widely distributed in the United States, Europe, and Japan.

Pinus densiflora: Japan.

P. strobus: Germany.

P. sylvestris: Scotland.

P. thunbergii: Japan.

Ceratocystis paradoxa (Dade) Moreau (xx) **blight, rot**

Causes blight of leaves and inflorescences, bleeding stem, and bud rot of palms; also blight of *Carica*, *Mangifera*, and *Theobroma*. Distributed widely in subtropical and tropical regions of North America, Europe, Asia, Africa, Philippines, Andamans, East Indies, West Indies, New Hebrides, and New Guinea.

Areca cathecu: Ceylon, India.

Borassus flabellifer: India.

Cocos nucifera: Andaman Islands, Ceylon, Fiji Islands, Gold Coast, Guadeloupe, India, Ivory Coast, Jamaica, Mauritius, New Guinea, New Hebrides, Philippines, Puerto Rico, St. Lucia (West Indies).

Coffea abeokutae: Ivory Coast.

C. canephora: Ivory Coast.

C. liberica: Ivory Coast.

Elaeis guineensis: Gold Coast, Congo, Ivory Coast, Sierra Leone.

Mangifera indica: India.

Phoenix canariensis: France, Italy.

P. dactylifera: India.

Roystonea regia: Mauritius.

Theobroma cacao: Gold Coast, Jamaica.

Ceratocystis piceae (Münch) Bakshi (xx) blue stain

Causes blue stain of living sapwood in many conifers and some hardwoods. Does not stain wood deeply. Distributed in the United States, Europe, and Japan.

Abies sp.: England, Finland, Germany, Japan, Norway, Poland, Russia, Spain, Sweden.

Acer mono: Japan.

Betula pendula: Japan.

Chamaecyparis obtusa: Japan.

Larix leptolepis: Scotland.

Magnolia obovata: Japan.

Picea sp.: England, Finland, Germany, Norway, Poland, Russia, Spain, Sweden.

Picea abies: Scotland.

P. glehnii: Japan.

P. jezoensis: Japan.

Pinus densiflora: Japan.

P. parviflora: Japan.

P. sylvestris: Sweden.

P. thunbergii: Japan.

Quercus spicata: Japan.

Thuja occidentalis: Japan.

Ceratocystis pilifera (Fr.) C. Moreau (xx) blue stain

Formerly known as *Ceratostomella pilifera* (Fr.) Winter. Perithecia with one whorl of ostiolar hyphae. A very widely spread blue-stain fungus in coniferous timber, especially pine, in North America. It is associated with bark beetles attacking overmature stands of living trees, and restricting the passage of water from the roots to the crown. Heavy damage may result locally. Distributed widely in North America, Europe, South Africa, and Australia.

Pinus sylvestris: Sweden.

Ceratocystis tetropii (Mathiesen) Hunt (xx) wood stain

Associated with bark beetles in half-dead spruce trees in Sweden. It does not cause dark discoloration in the wood around the insect tunnels.

Picea abies: Sweden.

Ceratocystis ulmi (Buis.) Moreau (xx) **elm wilt**

Formerly *Ceratostomella ulmi* Buis. Causes sudden wilting and yellowing of leaves on single branches or several scattered ones. Shedding of the leaves results in staghead and death of the entire tree in severe cases. Sapwood of infected branches shows brown discolorations in the last one or more annual rings. Other elm diseases have similar symptoms, and careful culturing of the fungus is necessary to distinguish them. Elm bark beetles feed on small twigs and carry spores with them. The injuries are entry points for infection by the fungus into the cambium and conducting vessels of the sapwood.

Distributed in Eastern United States and the Provinces of New Brunswick, Ontario, and Quebec in Canada. It has spread over Europe eastward into Russia. The American and European elms are attacked, and resistance of some Asiatic elms has led to the supposition that the disease is Asiatic in origin and came to Europe in World War I. Selection of resistant trees and crossbreeding resistant foreign elms with American elm appear to promise indirect means of control.

Ulmus spp.: Czechoslovakia, France, Germany, Great Britain, Italy, Netherlands, Norway, Sweden, Switzerland, Yugoslavia.

U. "Buisman": Italy.

U. carpinifolia: Netherlands, Poland, Romania, Russia.

U. carpinifolia var. *italica*: Netherlands.

U. carpinifolia f. *propendens*: Europe.

U. carpinifolia f. *sarniensis*: Netherlands.

U. carpinifolia f. *wredei*: Netherlands.

U. glabra: Germany, Italy, Netherlands, Poland, Romania.

U. × hollandica: Czechoslovakia.

U. × hollandica var. *belgica*: Netherlands.

U. × hollandica var. *vegeta*: Netherlands.

U. laciniata var. *nikkoensis*: Italy.

U. laevis: Czechoslovakia, Italy, Netherlands.

U. procera: Czechoslovakia.

U. pumila: Belgium, Italy.

Cercoseptoria esfandiarii Petr. (x) **leaf spot**

Causes leaf spots of *Alnus*, irregularly shaped, widely scattered, blackened above, below light brown to ochraceous. Known only in Iran.

Alnus subcordata: Iran (Ziarat forest).

Cercospora acaciae-confusae Sawada (xxx) **leaf spot**

Causes leaf spots, 0.5 to 2 mm. across, round, brown with gray centers, and raised margins on *Acacia*. Known only in Formosa.

Acacia confusa: Formosa.

Cercospora acericola Woron. (xxx) **maple leaf spot**

Causes leaf spots 2 to 3 mm. across, gray to white with a distinct dark border. Sometimes involves the entire leaf. Known in Russia and Italy.

Acer campestre: Russia.

Cercospora ailanthi P. Syd. (xxx) leaf spot

On rounded spots 0.5 to 6 mm. across, with grayish centers and dark brown margins on *Ailanthus*. Known only in Rixdorf, Germany.
Ailanthus altissima: Germany.

Cercospora alhagi Barbarini (xxx) blight

Forms small groups of minute black pustules on leaves, twigs, and spines of *Alhagi* without definite spots. Known only in Astrakhan.
Alhagi pseudalhagi: Russia (Astrakhan).

Cercospora allophyli Saw. (xxx) leaf spot

Forms indistinct spots on the upper surface of the infected leaves. On the lower surface it shows as moldlike, effuse, olivaceous to black patches, 0.5 to 6 mm. across. Distributed in Formosa and Uganda.
Allophylus sp.: Uganda.
A. timorensis: Formosa.

Cercospora ariae Fekl. (xxx) leaf spot

Causes leaf spots of *Sorbus* up to half of leaf area, dark reddish brown on upper surface, and dingy brown below. Distributed in central western Europe.
Sorbus aria: Germany.
S. aucuparia: Germany.

Cercospora artocarpi H. & P. Syd. (xxx) leaf spot

On irregular spots on leaves of *Artocarpus* between veins extending from margin to midrib, 10 to 20 mm., yellowish to dark brown. Known only in the Philippines.
Artocarpus altilis: Philippines.
A. blancoi: Philippines.

Cercospora atrides Syd. (xxx) leaf mold

Causes no leaf spots. Forms moldlike effuse, dark, olivaceous, minute patches on the lower leaf surface of *Bridelia*. Distributed in China and Formosa.
Bridelia monoica: China.

Cercospora barringtoniae Syd. (xxx) leaf spot

Causes round leaf spots 3 to 6 mm. in diameter, brown with no distinct margin. Known only in the Philippines.
Barringtonia acutangula: Philippines.
B. luzoniensis: Philippines.

Cercospora bauhiniae H. & P. Syd. (xxx) leaf spot

On leaf spots of foliage of *Bauhinia* and related trees; spots are 2 to 9 mm. across, grayish brown to pale brown with a dark brown line margin. Distributed in the Philippines, Transvaal, Venezuela, Colombia, Gold Coast, and Ethiopia.
Bauhinia malabarica: Philippines.
B. reticulata: Gold Coast.
Pithecellobium ligustrinum: Venezuela.

Cercospora bischofia Yamamoto (xxx) leaf spot

Causes leaf spots 2 to 10 mm. across, reddish brown to purplish brown, mostly on lower leaf surface. Known only in Formosa.

Bischofia javanica: Formosa.

Cercospora bombacina T. S. & K. Ramak. (xxx) leaf spot

On leaf spots of *Bombax* in India.

Bombax malabaricum: India.

Cercospora broussonetiae Chupp & Linder (xxx) leaf mold

Causes no spot on upper leaf surfaces. Forms moldlike, effuse, dark olivaceous fruiting layers on the lower leaf surface. Known only in China.

Broussonetia sp.: China.

Cercospora bunchosiae Chupp & Muller (xxx) leaf spot

Causes spots on leaves, rounded, 2 to 8 mm. across, mostly with three zones, the center gray, then dark brown, and finally burnt sienna, fading into the healthy-colored leaf tissue. Known only in Venezuela.

Bunchosia glandulifera: Venezuela.

Cercospora byrsonimatis Maubl. (xxx) leaf spot

Causes large, irregular discolorations, on the upper leaf surface; lesions below coalesce into large brown to gray areas 0.5 to 2 mm. across. Distributed in Brazil, Venezuela, and Colombia.

Byrsonima sp.: Brazil.

Cercospora caffra H. & P. Syd. (xxx) leaf spot

Causes rounded leaf spots, 1 to 4 mm. long, reddish brown to almost black, immarginate, difficult to distinguish on a brown dried leaf. Distribution, several localities in Transvaal.

Sclerocarya caffra: Transvaal.

Cercospora careyae T. S. & K. Ramak. (xxx) leaf spot

On isolated, irregular, brown leaf spots. Known only in India.

Careya arborea: India.

Cercospora caryae Chupp & Doidge (xxx) leaf spot

Causes numerous leaf spots, minute, 0.5 to 2 mm. in diameter, white to almost black. Affected leaves finally turn brown. Known only in the Transvaal.

Carya illinoensis: Union of South Africa (Transvaal).

Cercospora caseariae F. L. Stevens (xxx) leaf spot

Causes leaf spots, ashen white, with a wide purplish border, rounded, 2 to 4 mm. across. Distributed in Puerto Rico, Dominican Republic, and Trinidad. Also reported in India.

Casearia guianensis: Dominican Republic, Puerto Rico.

C. tomentosa: India.

Cercospora castaneae Muller & Chupp (xxx) leaf spot

Causes reddish-brown leaf spots 2 to 10 mm. across. Known only in Brazil.

Castanea sativa: Brazil.

Cercospora castilloae Saw. (xxx) leaf spot

Causes marginal leaf spots, 0.5 to 12 mm. across, dull brown to almost gray, fading into the normal leaf color. Known only in Formosa.

Castilla elastica: Formosa.

Cercospora catappae P. Henn. (xxx) leaf spot

Causes spots on leaves of *Terminalia*, 1.5 to 4 mm. across, with centers pale brown to dingy gray, and margins wine colored to black. Distributed in East Africa, India, Formosa, and Guam.

Terminalia catappa: East Africa, India.

Cercospora ceibae Chupp & Viégas (xxx) leaf spot

Associated with leaf spots 2 to 5 mm. across, dingy gray, with a narrow dark red to purple border. Known only in Brazil.

Ceiba pentandra: Brazil.

Cercospora chionea Ell. & Ev. (xxx) leaf spot

Causes leaf spots, yellowish tan to dark reddish brown, 5 to 15 mm. across. Distributed sparsely in North America from Kansas, Missouri, Oklahoma, Illinois, and Indiana, eastward to New York. Also reported in China and Japan.

Cercis chinensis: China.

Cercospora chloroxyli Ramak. & Reddy (xxx) leaf spot

Causes irregularly shaped, straw-colored to pale brown leaf spots, with minute fruiting clusters often in concentric rings. Known only in India.

Chloroxylon swietenia: India.

Cercospora chrysobalani Ell. & Ev. (xxx) leaf spot

Causes leaf spots 1 to 6 mm. across, reddish brown, sometimes with lighter brown centers, and raised line border. Distributed in Dominican Republic and the Gold Coast; also in the Gulf States of North America.

Chrysobalanus icaco: Gold Coast.

Cercospora ciferii Chupp (xxx) leaf mold

Forms moldlike, dark, effuse fruiting patches on the lower leaf surface. Known in Puerto Rico and Dominican Republic.

Casearia guianensis: Puerto Rico.

Cercospora cinchonae Ell. & Ev. (xxx) leaf spot

Causes leaf spots on both leaf surfaces, round, 2 to 4 mm. across, very dark reddish brown, sometimes with slightly raised margins. Reported in Louisiana. Distributed in Uganda and Belgian Congo.

Cinchona officinalis: Congo.

Cercospora clerodendri Miyake (xxx) leaf spot

On leaf spots, often vein-bound, 2 to 5 mm. long, dark reddish brown, occasionally with grayish center. Distributed in China, Japan, Formosa, and the Transvaal.

Clerodendrum trichotomum: China (Honan).

Cercospora coffeicola Berk. & Cke. (xxx) coffee leaf spot

Causes leaf spots on *Coffea* on the upper leaf surface; round, 3 to 10 mm. across, tan with gray or white centers and reddish brown to almost black margins. Distributed in Jamaica, Puerto Rico, Dominican Republic, Mexico, Guatemala, Trinidad, Colombia, Venezuela, Peru, Brazil, Java, South Africa, New Caledonia, China, Japan, Philippines, Uganda, and Sierra Leone. Probably is everywhere that coffee is grown extensively.

Coffea arabica: China (Yunnan), Colombia, Costa Rica, Dominican Republic, Egyptian Sudan, El Salvador, Formosa, Guatemala, India, Ivory Coast, Jamaica, Java, Kenya, Madagascar, Mexico, New Caledonia, Peru, Philippines, Puerto Rico, Tanganyika, Uganda, Venezuela.

C. bukohensis: Philippines.

C. canephora: Congo.

C. canephora var. *robusta*: Egyptian Sudan.

C. excelsa: Philippines.

C. stenophylla: German East Africa, Sierra Leone.

Cercospora colubrinae Chupp & Viégas (xxx) leaf spot

Causes irregular leaf spots 2 to 6 mm. long, dark reddish brown, centers grayish brown when old. Known only in Brazil.

Colubrina rufa: Brazil.

Cercospora conocarpi Chupp & Muller (xxx) leaf spot

Causes leaf spots 2 to 6 mm. across, or coalescing into large areas, brown. Known only in Mona Island and Venezuela.

Conocarpus erectus: Venezuela.

Cercospora couratariae Chupp (xxx) leaf spot

Causes leaf spots 3 to 7 mm. across, pale to dark reddish brown, with narrow yellowish-brown margins. Known only in Brazil.

Cariniana estrellensis: Brazil.

Cercospora crataegi Sacc. & Massal. (xxx) leaf spot

Causes leaf spots 0.5 to 2 mm. across, enlarging later to 2.7 mm., with dark brown or black centers and yellow halos. Distributed in Texas and southern Europe.

Crataegus oxyacantha: Italy.

Cercospora cryptomeriae Shirai (xxx) seedling blight

Causes necrotic reddish spots at the base of leaves of *Cryptomeria* seedlings and moves up until the entire leaf is killed. Severe attacks may kill the whole plant. It is said to have caused some Japanese nurserymen to stop growing this conifer. Distributed in Japan and Formosa.

Cryptomeria japonica: Formosa, Japan.

Cercospora cupaniae Syd. (xxx) **leaf spot**

Causes leaf spots 4 mm. across to almost whole length of leaf margin, pale brown with slightly darker wide margin. Known only in Costa Rica.

Cupania guatemalensis: Costa Rica.

Cercospora cybistacis P. Henn. (xxx) **leaf spot**

Causes circular leaf spots, 3 to 7 mm. in diameter, grayish brown to nearly black. Known only in Brazil.

Cybistax antisiphilitica: Brazil.

Cercospora didymochetonis Wakef. (xxx) **leaf spot**

Forms moldlike, effuse, olivaceous, sparse fruiting patches 0.5 to 2 mm. across, on the lower leaf surface. Known only in Fiji.

Dysoxylum richii: Fiji Islands.

Cercospora dilleniae Petch (xxx) **leaf blotch**

Causes large, irregular, gray to tan leaf blotches, 7 to 30 mm. across, sometimes with two distinct zones. Known only in Ceylon.

Dillenia retusa: Ceylon.

Cercospora dolichandrone Chupp (xxx) **leaf spot**

Causes rounded leaf spots, 3 to 10 mm. across, yellowish green, becoming gray to tawny gray. Known only in Uganda.

Dolichandrone platycalyx: Uganda.

Cercospora ehretiae Togashi & Katsuki (xxx) **leaf spot**

Causes leaf spots, 5 to 15 mm. across, fuscous brown, sometimes coalescing and covering much of the leaf surface. Known only in Japan.

Ehretia thyrsoiflora: Japan.

Cercospora elaeidis Stey. (xxx) **leaf spot**

Causes circular leaf spots, dark brown, margin distinct, surrounded by an orange zone. Known only in Belgian Congo.

Elaeis guineensis: Belgian Congo.

Cercospora elasticae Zimm. (xxx) **leaf blotch**

Causes leaf spots, grayish brown, 2 to 4 mm. across to large blotches. Reported in Java and Venezuela.

Ficus carica: Venezuela.

F. elastica: Java.

Cercospora epicoccoides Cke. & Mass. (xxx) **leaf spot**

Causes indistinct dark reddish, irregular areas on the upper leaf surface. Known only in Victoria, Australia.

Eucalyptus globulus: Australia.

Cercospora eucalypti Cke. & Mass. (xxx) leaf spot

Causes leaf spots 2 to 8 mm. across, pale brown to almost gray, occasionally with a wide purple border. Distributed in Australia, Formosa, Peru, Brazil, Argentina, Belgian Congo, and India.

Eucalyptus sp.: Australia, Peru.

E. camaldulensis: Argentina.

E. ficifolia: India.

E. globulus: Formosa, Brazil, Argentina.

Cercospora eugeniae (Rangel) Chupp (xxx) leaf spot

Causes leaf spots usually 0.5 to 4 mm. across, rarely much larger, white with a purple border, or uniformly brown. Distributed in Bermuda, Brazil, and Formosa.

Eugenia javanica: Formosa.

E. uniflora: Brazil.

Cercospora exosporioides Bub. (xxx) larch leaf spot

Causes reddish-brown spots on the needles. In severe cases the entire needle dies and falls prematurely. Known only in Moravia.

Larix decidua: Czechoslovakia (Moravia).

Cercospora fagariae Yamamoto (xxx) leaf spot

Causes irregular leaf spots 0.5 to 8 mm. across, dark reddish brown. Known only in Formosa.

Zanthoxylum ailanthoides: Formosa.

Cercospora forsteriana Chupp & Viégas (xxx) leaf spot

Causes angular spots, vein limited, 0.5 to 4 mm. long. Known only in Brazil.

Juglans regia: Brazil.

Cercospora fukuokaensis Chupp (xxx) leaf spot

Causes leaf spots, reddish brown to grayish brown, 1 to 3 mm. across, often confluent along the leaf margin. Known only in Japan.

Styrax japonica: Japan.

Cercospora fusca (Heald & Wolf) Rand (xxx) pecan leaf spot

Causes brown leaf spot, 5 to 15 mm. across. Distributed in North America north to South Carolina and Oklahoma and westward to New Mexico. Also reported in Venezuela.

Carya illinoensis: Venezuela.

Cercospora geraiensis Chupp (xxx) leaf spot

Causes spots on leaves, 4 to 30 mm. long, pale brown to gray center, with purple to dark brown border. Known only in Brazil.

Terminalia catappa: Brazil.

Cercospora glandulosa Ell. & Kell. (xxx) leaf spot

Causes leaf spots 1 to 6 mm. across, grayish brown to dingy gray or almost black. Distributed in southern United States north to Nebraska, in South America and China.

Ailanthus altissima: China, South America.

Cercospora glauca Syd. (xxx) leaf spot

Causes irregular leaf spots, 3 to 10 mm. across, dark brown with pale centers. Known only in China.

Albizia kalkora: China.

Cercospora guazumae Syd. (xxx) leaf spot

Causes leaf spots 2 to 6 mm. across, tan to yellowish brown with dark brown borders. Known in Venezuela and the Dominican Republic.

Guazuma ulmifolia: Venezuela.

Cercospora gymnanthis Chupp (xxx) leaf spot

Causes leaf spots 0.5 to 3 mm. across, gray to nearly white, with thin, raised, reddish-brown borders. Known only in Jamaica.

Gymnanthes lucida: Jamaica.

Cercospora haematoxylonis Chupp (xxx) leaf spot

Causes rounded leaf spots 0.5 to 2 mm. long, with minute pale brown to tan centers and dark reddish-brown margins. Known only in Jamaica.

Haematoxylon campechianum: Jamaica.

Cercospora hurae F. L. Stevens (xxx) leaf spot

Causes leaf spots, zonate, alternate gray and brown, or large gray blotches with dark borders, 5 to 20 mm. across. Distributed in Puerto Rico, Barbados, Dominican Republic, Venezuela, and Brazil.

Hura crepitans: Barbados, Puerto Rico, Venezuela.

Cercospora huricola Chupp (xxx) leaf spot

Occurs on leaf spots 2 to 10 mm. across, dark reddish brown, often with gray centers, on *Hura*. Known in Brazil and Venezuela.

Hura crepitans: Brazil.

Cercospora ilicicola Maubl. (xxx) leaf spot

Causes circular leaf spots, 1 to 3 mm. in diameter, dingy gray, with purple borders. Distributed in Brazil. Reported in Florida, but is another fungus.

Ilex paraguariensis: Brazil.

Cercospora jahnii Syd. (xxx) leaf spot

Causes leaf spots 3 to 20 mm. long, gray to grayish brown with wide, dark, ferruginous margins. Known in Venezuela and Trinidad.

Tabebuia rosea: Venezuela.

Cercospora kashotoensis Yamamoto (xxx) leaf mold

Forms fruiting patches on lower side of leaf, effuse, olivaceous, 2 to 10 mm. across. Known only in type locality, Formosa.

Clerodendrum inerme: Formosa.

Cercospora lindericola Yamamoto (xxx) leaf spot

Causes irregular leaf spots of varying sizes up to a large part of the leaf area, yellowish brown to dark brown with black borders, or irregular black areas mixed with the brown. Known only in Formosa.

Lindera oldhamii: Formosa.

Cercospora litseae-glutinosae Syd. (xxx) leaf spot

On leaf spots dark brown to black, with paler centers, 0.5 to 5 mm. across. Known in the Philippines and Japan.

Litsea glutinosa: Philippines.

L. perrottetii: Philippines.

Cercospora lonchocarpi Stevenson (xxx) leaf spot

Causes large spots 5 to 20 mm. across, yellowish gray to tan, outlined by a narrow, dark, reddish-brown line. Distributed in Brazil, Peru, and British Guiana.

Lonchocarpus chrysophyllus: British Guiana.

L. nicou: Brazil, Peru.

L. urucu: Brazil.

L. utilis: Peru.

Cercospora lumbricoides Turc. & Maf. (xxx) ash leaf spot

Causes rounded leaf spots, yellowish, slightly zonate, with narrow reddish-brown borders. Known only in Mexico.

Fraxinus sp. Mexico.

Cercospora lythracearum Heald & Wolf (xxx) leaf spot

Causes circular leaf spots 3 to 10 mm. in diameter, pale brown to dingy gray or dark olivaceous, often with a green fringe on brown leaves then fading into a yellowish halo. Distributed in Texas, Trinidad, and Puerto Rico. Also reported from Formosa, Philippines, India, and Uganda.

Lagerstroemia speciosa: Philippines.

Cercospora meliae Ell. & Ev. (xxx) leaf spot

Causes leaf spots 0.5 to 2.5 mm. across with white centers and narrow, dark, reddish-brown line borders. Distributed in Alabama and Louisiana in North America, and in China, Formosa, and India.

Melia azedarach: China, India, Formosa.

Cercospora microsora Sacc. (xxx) linden leaf spot

Causes spots on twigs and leaves. On twigs, causes dark oval spots 5 to 25 mm. long; variable leaf spots on different species of *Tilia*, some are large, reddish brown with a dark line margin, others have small white specks with a wide dark border 1 to 5 mm. across. Distributed from Wisconsin and Kansas to Vermont and Delaware in North America; in Europe from Italy to Norway, Scotland, and Denmark eastward to Russia; in Caucasus, Central Asia, New South Wales, and Colombia.

Tilia sp.: France, Norway.

T. cordata: Russia, Poland.

T. dasystyla: Iran.

T. ×europaea: Denmark.

T. platyphyllos: Denmark, France, Germany.

T. tomentosa: Russia (Ismail-Bessarabia).

Cercospora mirandensis Chupp (xxx) **leaf spot**

Causes irregular small leaf spots sometimes coalescing into large areas with the centers tan to dingy gray, and wide dark red or reddish-brown margins. Known only in Venezuela.

Miconia ibaguensis: Venezuela.

Cercospora molleriana Wint. (xxx) **leaf spot**

Causes leaf spots 2 to 10 mm. in diameter, pale brown to dull gray centers with dark brown margins. Known in Portugal and Hyeres Islands (Port Cros).

Arbutus longifolia: Portugal.

A. unedo: Portugal.

Cercospora mori Hara (xxx) **leaf mold**

Forms moldlike fruiting patches on the lower leaf surface, olivaceous to dark in color, varying from 0.5 mm. across to large areas of the leaf surface. Distributed in Alabama, Belgian Congo, Japan, Formosa, and China.

Morus sp.: Belgian Congo.

Cercospora moricola Cke. (xxx) **leaf spot**

Causes leaf spots 1 to 8 mm. across, with gray to tan centers, and dark purple to black borders. Distributed in North America from Mississippi to Wisconsin and eastward. Also reported in England, Italian Somaliland, India, and Brazil.

Morus alba: Brazil, England, India, Italian Somaliland.

Cercospora morindae Syd. (xxx) **leaf spot**

Causes leaf spots 2 to 10 mm. across, reddish brown, sometimes with pale tan to grayish centers. Known only in India.

Morinda tinctoria: India.

Cercospora myrticola Speg. (xxx) **leaf spot**

Causes leaf spots circular to angular, 3 to 10 mm. in diameter, yellowish tan to rusty brown, sometimes with a darker border. This is occasionally damaging. An account tells of defoliation of *Myrtus communis* L. in ornamental plantings in Germany. Distributed in Brazil, Chile, Paraguay, most of Europe, and South Africa.

Myrtus communis: Germany, Great Britain, Greece, Italy.

M. divaricata: Chile.

Cercospora myxa Syd. (xxx) **leaf mold**

Forms moldlike fruiting patches on the lower leaf surface, effused, dark olivaceous to sooty. Known only in India.

Cordia myxa: India.

Cercospora pachirae Chupp & Muller (xxx) **leaf spot**

Causes leaf spots 2 to 5 mm. across, white to dingy gray, with a dark purple border. Known only in Venezuela.

Pachira insignis: Venezuela.

Cercospora paulowniae Hori (xxx) leaf spot

Causes circular leaf spots 1 to 10 mm. in diameter, grayish or fuliginous. Distributed in Japan and China.

Paulownia tomentosa: Japan.

Cercospora phaeochlora Speg. (xxx) leaf spot

On leaf spots, water-soaked areas gradually changing to dark reddish brown, irregular in shape, 2 to 7 mm. long, without a distinct margin. Distributed in Argentina and Chile.

Lithraea brasiliensis: Argentina, Chile.

L. caustica: Argentina, Chile.

Cercospora pini-densiflorae Hori & Nambu (xxx) pine leaf blight

Causes yellowish-brown to gray spots mostly on the upper half of the needle. On 2-year trees the needles are killed so extensively that the disease is known as "leaf blight." Known in Japan and Formosa.

Pinus densiflora: Japan.

P. luchuensis: Formosa.

P. massoniana: Formosa.

Cercospora piscidia P. Henn. (xxx) leaf mold

Forms moldlike fruiting patches on the lower leaf surface, effuse, yellowish or yellowish brown. Known only in Jamaica.

Piscidia piscipula: Jamaica.

Cercospora populicola Tharp. (xxx) poplar leaf spot

On circular leaf spots 3 to 10 mm. in diameter, dingy gray to grayish brown. Known in Texas and Brazil.

Populus deltoides: Brazil.

Cercospora populina Ell. & Ev. (xxx) poplar leaf spot

Causes irregular leaf spots, 3 to 7 mm. across or coalescing into much larger areas, brown to dingy gray. Distributed in North America in Missouri, Louisiana, and Alabama; also reported in Japan and Argentina.

Populus nigra var. *italica*: Argentina.

Cercospora rhinocarpi Chupp & Muller (xxx) leaf spot

Causes irregular leaf spots 2 to 8 mm. across, brown or grayish brown. Known only in Venezuela.

Anacardium excelsum: Venezuela.

Cercospora salicina Ell. & Ev. (xxx) willow leaf spot

Causes leaf spots 0.5 to 5 mm. across, dark reddish brown. Distributed from Manitoba to Argentina, and in Formosa and China.

Salix babylonica: China.

S. humboldtiana: Peru.

S. matsudana: Argentina.

Cercospora samaneae Chupp & Muller (xxx) leaf mold

Forms moldlike fruiting areas on the lower leaf surface in irregular patches, sometimes covering almost the entire leaf surface, dark olivaceous to black. Known only in Venezuela.

Pithecellobium saman: Venezuela.

Cercospora sapiicola Speg. (xxx) leaf blotch

On brown leaf spots varying from 2 to 5 mm. across to 10 to 20 mm. blotches. Known in Argentina, Costa Rica, and Uganda.

Sapium aucuparium var. *salicifolium*: Argentina.

Cercospora sapindi Ob.-Brotero (xxx) leaf spot

Causes leaf spots 2 to 6 mm. across, gray, grayish brown to tan, often with a reddish-brown line margin. Known only in Colombia.

Sapindus saponaria: Colombia.

Cercospora sapindi-emarginati T. S. & K. Ramak. (xxx) leaf spot

Causes angular leaf spots 2 to 3 mm. across, yellowish to brown, sometimes with a white center. Known only in India.

Sapindus trifolius: India.

Cercospora sapindicola Tai (xxx) leaf spot

Causes indefinite, confluent, large leaf spots, usually irregular along the leaf margin. Known only in China.

Sapindus mukorossii: China.

Cercospora schreberae Mahmud (xxx) leaf spot

Causes minute yellow leaf spots that later turn brown. Late in the season spots form on petioles and twigs. Known only in India.

Schrebera swietenoides: India.

Cercospora securinegae Togush & Katsuki (xxx) leaf spot

Causes rounded leaf spots 2 to 5 mm. across, dingy reddish brown, then yellowish to gray, often confluent. Known only in Japan.

Securinega suffruticosa: Japan.

Cercospora shoreae Thirum. & Chupp (xxx) leaf spot

On irregularly shaped leaf spots 3 to 10 mm. across, dull gray with a pale brown line margin. Known only in India.

Shorea talura: India.

Cercospora sissoo Syd. (xxx) leaf mold

Forms on the lower leaf surface moldlike fruiting patches of closely aggregated groups of black pustules. Known only in India.

Dalbergia sissoo: India.

Cercospora spegazzinii Sacc. (xxx) leaf spot

On leaf spots 2 to 7 mm. across, dark reddish brown, oldest spots immarginate. Known only in Argentina. Reported in Kansas, but it seems uncertain.

Celtis tala: Argentina.

Cercospora sphaeriaeformis Cke. (xxx) elm leaf spot

On leaf spots 2 to 6 mm. across, yellowish gray to silver gray, with grayish centers. Distributed from Texas to Florida, Georgia, and South Carolina; also in China and Japan.

Ulmus pumila: China.

Cercospora spilosticta Syd. (xxx) leaf spot

Causes irregular leaf spots, 2 to 6 mm. across, or coalescing into larger areas, pale yellowish brown. Known in Venezuela and Argentina. Apparently present in Formosa.

Pithecellobium lanceolatum: Venezuela.

P. ligustrinum: Venezuela.

Cercospora stenolobiicola Chupp (xxx) leaf spot

Causes numerous leaf spots, 2 to 10 mm. across, tan to pale brown, on leaves of *Tecoma* and *Tabebuia*. Known in Argentina and Venezuela.

Tabebuia serratifolia: Venezuela.

Cercospora stevensii Young (xxx) leaf spot

Associated with small leaf spots, reddish brown above, black beneath. Distributed in Puerto Rico, Brazil, and Colombia.

Andira inermis: Colombia, Puerto Rico.

Cercospora subsessilis Syd. (xxx) leaf spot

Causes leaf spots of *Melia* and *Swietenia*, 2 to 5 mm. across, zonate, tan, gray, or pale brown. Distributed in Mississippi and Texas; Mona Island, Dominican Republic, Sierra Leone, and Anglo-Egyptian Sudan; Ceylon, India, China, Japan, and Philippines.

Melia azadirachta: India.

M. azedarach: Anglo-Egyptian Sudan, India, Philippines, Dominican Republic.

Swietenia mahagoni: Mona Island.

Cercospora tabernaemontanae Syd. (xxx) leaf spot

On circular leaf spots 3 to 10 mm. in diameter, pale tan to dingy gray with narrow brown borders. Known in the Philippines and Malaya.

Tabernaemontana sp.: Malaya.

T. pandacagui: Philippines.

Cercospora tectonae Stevens (xxx) teak leaf spot

Causes angular leaf spot, 1 to 4 mm. across or coalescing into large blotches, dull brown to grayish brown or white. Distributed in Hawaii, Trinidad, and India.

Tectona grandis: Hawaii, India.

Cercospora ulmicola Chupp (xxx) elm leaf spot

Causes irregular leaf spots, often coalescing into a large part of the leaf area, brown to grayish brown. Known in Texas and Bermuda.

Ulmus rubra: Bermuda.

Cercospora volkameriae Peg. (xxx) leaf spot

Causes irregular leaf spots, 1 to 20 mm. across, dingy gray. Known in Brazil and the Gold Coast.

Clerodendrum fragrans: Brazil.

C. scandens: Gold Coast.

Cercospora zelkowae Hori (xxx) **leaf spot**

On rounded leaf spots 0.5 to 5 mm. in diameter, at first purplish, then brown, finally with gray centers. Known only in Japan.

Zelkova serrata: Japan.

Cercospora hurae Linder & Whet. (xxx) **leaf spot**

Causes leaf spots up to 7 mm. across, larger by confluence, chamois colored centers, bordered by dark brown or almost black margins. Known only in Venezuela.

Hura crepitans: Venezuela.

Cercospora theae Petch (xxx) **leaf spot**

Causes small, dark brown to black spots on young leaves; the spots coalesce and spoil older leaves of a number of broad-leaved trees. Sunken purple patches appear on green twigs. Reported in Ceylon on a number of species of *Eucalyptus* and *Acacia*. Distributed in Ceylon and India.

Acacia decurrens: Ceylon, India.

A. decurrens var. *dealbata*: Ceylon.

A. melanoxylon: Ceylon.

Albizia moluccana: India.

Delonix regia: India.

Eucalyptus diversicolor: Ceylon.

E. robusta: Ceylon.

Cerotelium fici (Butl.) Arth. (xxx) **rust**

Forms powdery, cinamon-brown rust pustules on leaves of many species of Moraceae. Distributed from North Carolina to Texas, in the West Indies, Central America, and tropical regions of the world.

Broussonetia papyrifera: China.

Ficus sp.: Portugal, Puerto Rico, Zanzibar.

F. angustifolia: Ecuador.

F. carica: Barbados, Bermuda, Brazil, China, Colombia, Congo, Cuba, Dominican Republic, El Salvador, France, Greece, Guatemala, Jamaica, Mauritius, Morocco, North Africa, Peru, Philippines, Puerto Rico, Tanganyika, Venezuela.

F. combsii: Cuba.

F. crassinervia: Puerto Rico.

F. glomerata: Pakistan.

F. ibapohy: Brazil.

F. laevigata: Puerto Rico.

F. minahassae: Philippines.

F. odorata: Philippines.

F. padifolia: Guatemala, Venezuela.

F. radula: Trinidad.

F. religiosa: Pakistan, Philippines.

Morus sp.: Madagascar.

M. alba: Philippines, Tanganyika.

M. insignis: Guatemala.

Cerotelium lanneae (Hoehn.) Arth. (xxx) **rust**

Forms rust pustules on leaves. Known in India and Pakistan.

Lannea woderi: India, Pakistan.

Chaconia alutacea Juel (xxx)

rust

Forms brownish spots 3 to 4 mm. across on leaves of *Pithecellobium*. Distributed in British Honduras, Paraguay, and Peru.

Pithecellobium divaricatum: Paraguay.

P. glomeratum: Peru.

P. recordii: British Honduras.

Chaconia ingae (Syd.) Cumm. (xxx)

rust

Forms pulverulent cinnamon-brown fungus pustules on leaves, followed by white telia. Distributed in Mexico, Central and South America, Puerto Rico, and Trinidad.

Inga adenophylla: Colombia.

I. coriacea var. *leptopus*: Costa Rica.

I. edulis: Brazil, Colombia, El Salvador, Guatemala.

I. ingoides: Colombia.

I. inicuil: Mexico.

I. insignis: Ecuador.

I. laurina: Puerto Rico.

I. micheliana: Guatemala.

I. pinetorum: British Honduras.

I. preussii: El Salvador.

I. spuria: Colombia, Guatemala.

I. vera: Dominican Republic, Puerto Rico.

Chaconia tectonae T. S. & K. Ramakr. (xxx)

teak rust

Forms abundant bright yellow to orange rust pustules on leaves. Later waxy orange telia form, mixed with the uredosori. Distributed in India and Pakistan.

Tectona grandis: India, Pakistan.

Chaetostigme cordiae (P. Henn.) F. L. Stevens (xxx)

black mildew

Forms black mildew fungus coatings on leaves of *Cordia* in Venezuela.

Cordia cylindrostachya: Venezuela.

Choanephora cucurbitarum (Berk & Rav.) Thaxt. (xxx) blight

Forms a luxuriant fungus web, white then brown to purple, with fruiting heads looking like little pins. On foliage and inflorescences extending into young fruits and causing soft rot. Reported on a number of tree species in tropical and subtropical regions. Distributed in North America, South America, Europe, and Africa.

Theobroma cacao: Gold Coast.

Chrysomyxa abietis Unger (xxx) spruce needle cushion rust

? Autoecious, overwintering in spruce needles infected late the previous year, fruiting in the spring after infection, and infecting the current year's needles. Attacks the young leaves of *Picea* from northern Scandinavia and western Russia southward; causes partial defoliation in severe outbreaks. Usually this rust is not considered very damaging, but occurrences are reported of extensive defoliation. In-

roduced at Louisville, Ky., in 1907, on imported nursery stock of *P. abies* from Denmark. Is not known to have become established in the United States.

Picea abies: Belgium, Bulgaria, England, France, Germany, Denmark, Norway, Scotland, Russia, Sweden, Poland, Switzerland.

Chrysomyxa bombacis Petch (xxx) rust

Forms rust pustules on leaves of *Bombax* in Ceylon.

Bombax malabaricum: Ceylon (Peradeniya).

Chrysomyxa deformans (Diet.) Jacz. (xxx)
spruce twig and needle rust

? Autoecious, probably microcyclic. Forms elongate yellow rust pustules on needles and young twigs of *Picea* in India, Pakistan, and Siberia. Its autoecious habit makes this fungus a potential danger to other species of *Picea*, which are liable to direct infection.

Picea schrenkiana: Siberia.

P. smithiana: India, Pakistan.

Chrysomyxa expansa Diet. (xxx) rust

Forms yellow rust pustules on reddish-brown leaf spots on *Rhododendron* and *Picea* in Japan and China.

Picea jezoensis: Japan.

Chrysomyxa himalensis Barclay (xxx)
rhododendron-spruce needle rust

Forms conspicuous rust pustules on the petioles, lower midribs, and leaf blades of the previous summer on *Rhododendron*. The rust is perennial and clumps of leaves (witches'-brooms) are developed. The leaves of infected shoots are smaller than normal. Inoculations of *Picea smithiana* needles with spores from *R. arboreum* produced rust pustules on the spruce needles. The rust is distributed in India and Pakistan.

Picea smithiana: India, Pakistan.

Chrysomyxa ledi var. *ledi* (d By.) Savile (xxx)
ledum-spruce needle rust

Holarctic. Heteroecious. Widely distributed on *Ledum* in North America and Europe; and on *Picea* in Europe but in North America not reported west of Saskatchewan.

Picea sp.: Siberia.

P. abies: Belgium, Denmark, Finland, Germany, Norway, Sweden.

P. likiangensis: China.

Chrysomyxa ledi var. *rhododendri* (DC.) Savile (xxx)
rhododendron-spruce needle rust

Heteroecious. Alternating between *Picea* needles in one stage and *Rhododendron* leaves and shoots in the other. It overwinters in spruce needles infected in the fall, fruits the next spring, and infects *Rhododendron* leaves and shoots. There it fruits promptly and infects the current year's needles on spruces. Apparently it can overwinter in *Rhododendron* and persist in localities where spruces are

lacking. Heavily rusted needles fall prematurely, and damage may result.

This rust occurs in alpine regions of Europe, Siberia, China, and Japan in both stages. It is reported in North America on *Rhododendron lapponicum* (L.) Wahl in a single locality in the District of Mackenzie, Canada, but is not known on *Picea* in the New World. On *Picea* it is believed to occur in mixture with one or more abundant rusts. The mixture is reported from Prince Edward Island to British Columbia and Alaska. It is known in the State of Washington on cultivated *Rhododendrons*, where it is believed to have been introduced from Europe.

Abies alba: Switzerland.

Picea abies: France, Germany, Great Britain, Ireland, Italy, Switzerland.

P. jezoensis: Japan.

P. sitchensis: Great Britain.

Chrysomyxa piceae Barcl. (xxx) rust

Forms rust pustules on needles of *Picea* in India. A probable alternate host seems to be still unknown.

Picea smithiana: India.

Chrysomyxa pirolata Wint. (xxx) spruce cone rust

Holarctic. Heteroecious. Forms pulverulent yellow rust pustules on *Pyrola*, later followed by waxy subepidermal, reddish fungus cushions. The latter are the overwintering stage of the fungus. Infection of spruce cone scales occurs while the scales are green and relatively succulent. The fungus is distributed in North America from Greenland, southern Canada and the northern half of the United States, southward in the western mountains to New Mexico and Guatemala; also in Europe, Siberia, Kamchatka, Japan, and China.

Picea abies: Czechoslovakia, Denmark, Germany, Norway, Sweden.

Chrysomyxa tsugae-yunnanensis Teng (xxx) hemlock rust

Forms rust pustules on needles of *Tsuga* in China.

Tsuga yunnanensis: China.

Chrysomyxa woronini Tranz. (xxx) spruce stunted-shoot rust

Heteroecious, accompanying ledum and spruces from Greenland through northern United States and Canada to Alaska, northern Europe, Siberia, India, Japan, and Kamchatka.

Abies pinsapo: Great Britain.

Picea abies: Denmark, Germany, Norway, Sweden.

P. obovata: Siberia (Yakutsk).

Ciboria alni (Maul) Whet. (xxx) _____

Forms sclerotia in place of seeds in catkins of *Alnus*. Known in Denmark, Germany, and Russia.

Alnus glutinosa: Denmark.

A. incana: Denmark, Russia.

Ciboria betulae (Wor.) White (xxx) **birch seed blight**

Attacks the pistillate flowers of catkins of *Betula*, destroying the seeds. Distributed in Denmark, Germany, Poland, Russia, Siberia, and Japan.

Betula sp.: Germany.

B. ermanii var. *subcordata*: Japan.

B. papyrifera: Denmark.

B. pendula: Denmark, Poland, Siberia, Russia.

B. platyphylla var. *japonica*: Japan.

B. pubescens: Russia.

Ciboria shiraiana (P. Henn.) Whet. (xxx) **mulberry popcorn disease**

Causes hypertrophy of separate segments of the fruits of *Morus*. Sclerotia form in the swollen drupelets, overwinter in the fallen fruits, and the next spring form spore-bearing cups to infect newly formed blossoms. The Old World fungus is distinct from the North American one, but their life histories and development are very similar. Distributed in Japan, Formosa, and China.

Morus alba: China, Formosa, Japan.

M. australis: Formosa, Japan.

Ciborinia candolleana (Lév.) Whet. (xxx) **leaf blotch**

Attacks the leaves of *Quercus* and *Castanea* causing premature leaf fall. Distributed in Great Britain, Denmark, France, and Germany.

Castanea sativa: Denmark, Great Britain.

Quercus petraea: Great Britain.

Q. robur: Denmark, Great Britain.

Q. rubra: Great Britain.

Ciliochorella bambusarum Shanor (xx) **bamboo leaf spot**

Forms black, stromatic fungus fruits on discolored spots on leaves. Occurs associated with the ascogenous fungus *Lateropeltis bambusarum* on fungus stromata attached to those of *Ciliochorella*. Distributed in El Salvador, Mexico, Costa Rica, and Canal Zone.

Arthrostylidium racemiflorum: Canal Zone, Costa Rica, El Salvador, Mexico.

Cionothrix cupaniae Arth. & Johnston (xxx) **felt rust**

Forms felt rust on lower side of leaves of *Cupania*. Each telial column is seated on a mammiform swelling on the leaf surface. Known in Cuba.

Cupania americana: Cuba.

C. glabra: Cuba.

Cladosporium epiphyllum (Pers.) Martius (xx) **black mold**

Causes olive-black mold on leaves of numerous trees in North America and Europe

Ficus magnolioides: Italy.

Larix decidua: Great Britain.

L. leptolepis: Great Britain.

Cladosporium herbarum (Lk.) Fr. (x) **black mold**

Normally is saprophytic on all sorts of dead plant material, but can occasionally become destructive to living leaves, shoots, and young seedlings. Forms an olive-black mold on affected parts. It is practically worldwide in distribution.

Coffea canephora var. *robusta*: Sumatra.

Picea sp.: Russia.

Pinus sp.: Russia.

P. rigida: Germany.

Populus suaveolens: Siberia.

Thuja orientalis: China.

Cladosporium lareis Sacc. (xx) **conifer needle mold**

Causes black erumpent spots on needles of various conifers, causing damage even in older trees. Known in Italy.

Cryptomeria japonica f. *elegans*: Italy.

Larix decidua: Italy (Apennines).

Pinus pinea: Italy.

Clasterosporium glomerulosum Sacc. (xx) **needle cast**

Associated with leaf cast of *Juniperus* in a nursery at Eberswalde, Germany.

Juniperus communis: Germany.

Clasterosporium javanicum Koord. (xx) **leaf spot**

Forms sooty, irregular leaf spots on leaves of *Ficus* in Java.

Ficus elastica: Java (Kedu).

Clasterosporium mori Syd. (xx) **leaf spot**

Occurs on brown leaf spots of *Morus*. Known in China and Japan.

Morus alba: China.

Claudopus nidulans (Fr.) Pk. (xx) **sapwood rot**

A mushroom with eccentric stem, yellow throughout, including gills and spores. Usually saprophytic on dead wood. Occasionally infects open wounds exposing the sapwood in living trees. Distributed generally in temperate North America; reported in Norway and Japan, apparently common in the Old World.

Morus sp.: Japan.

Clinconidium farinosum (P. Henn.) Pat. (xxx) **powdery mildew**

Causes profuse brown powdery mildew of leaves, shoots, and inflorescences of Lauraceous trees. Known in Brazil, Venezuela, and Puerto Rico.

Nectandra tweediei: Brazil.

Ocotea leucowylon: Venezuela.

Clitocybe tabescens (Fr.) Bres. (xxx) **root rot**

A mushroom much like *Armillaria mellea*, but with no annular collar on the upper stem. Distributed in the southern United States northward to Oklahoma, Missouri, Illinois, Indiana, West Virginia, and Virginia. It occurs north to New York and Michigan, but the

root rot caused by it is not known so far north. It is reported as causing root rot in Madagascar and as being present in Honduras.

Adenanthera pavonina: Madagascar.

Coffea canephora: Madagascar.

C. canephora var. *robusta*: Madagascar.

Pithecellobium dulce: Madagascar.

Clypeotrabutia portoricensis (Stev.) Chardon (xxx) leaf spot

Causes spots on the upper leaf surface of *Coccoloba* with small punctate perithecia, the latter with a black border around the ostiole. Known in Puerto Rico and Venezuela.

Coccoloba sp.: Venezuela.

C. venosa: Puerto Rico.

Coccochora kusanoi (P. Henn.) Hoehn. (xxx) oak leaf spot

Causes dark brown leaf spots, later becoming bright, light brown, 2 to 10 mm. across, with shiny black stromata scattered over the surface. Known only in Japan.

Quercus acuta: Japan.

Coccochorella quercicola (P. Henn.) Hoehn. (xxx) oak leaf spot

Forms shiny black, round fruiting bodies on the leaves of *Quercus acuta* in Japan.

Quercus acuta: Japan.

Coccodiella arundinariae Hara (xxx) bamboo leaf spot

Forms fleshy, disc-shaped, fruiting bodies on bamboo leaves. Known only in Japan and China.

Phyllostachys sp.: China.

Coccodothis sphaeroidea (Cke.) Theiss. & Syd. (xxx) needle wilt

Forms black mycelial pads on the living needles of *Juniperus* in Europe. The needles wilt in some cases.

Juniperus sp.: Germany.

J. oxycedrus: France (Corsica).

Coccomyces clusiae (Lév.) Sacc. (xx) leaf spot

Forms large, light-colored spots on leaves of *Clusia*. Distributed in Puerto Rico, Costa Rica, and northern South America.

Clusia rosea: Puerto Rico.

Coleopuccinia sinensis Pat. (xxx) rust

Causes brown rust pustules on leaves of *Amelanchier* and *Coton-easter* in China. Not otherwise known.

Amelanchier sp.: China.

Coleosporium asterum (Diet.) Syd. (xxx) rust

Heteroecious. Forms orange-yellow rust pustules on leaves of *Aster*, *Solidago*, and related herbaceous plants in early summer, followed by waxy, flat, subepidermal fungus pads. This is the overwintering stage of the fungus. The next spring tiny spores from these

pads are blown to neighboring hard pine leaves and promptly infect them. The early rust stage on the pine leaves forms white, upright tubules containing dusty yellow spores. Distributed generally in North America, Mexico, Europe, Japan, and China.

Pinus densiflora: Japan.

P. massoniana: China.

P. thunbergii: Japan.

Coleosporium barclayense Bagchee (xxx) rust

Causes orange, cylindrical to flattened outgrowths on needles of *Pinus griffithii*, containing orange, dusty spores. These infect neighboring *Senecio* leaves and form yellow rust pustules on the lower leaf surface, followed later by a brownish-orange overwintering stage. Distribution is limited to India and Pakistan.

Pinus griffithii: India, Pakistan.

Coleosporium cacaliae Otth (xxx) rust

Causes yellow rust pustules on the needles of hard pines and leaves of *Adenostyles* and *Cacalia*, overwintering on the two latter. Generally distributed in Europe, also in Siberia and Japan.

Pinus mugo: Switzerland.

P. sylvestris: Germany.

Coleosporium campanulae Lév. ex Kickx (xxx) rust

Forms white to yellow tubules on the needles of hard pines and yellow powdery pustules on the lower leaf surface of *Campanula* and related plants. Distributed in temperate North America, Europe, and Asia.

Pinus densiflora: Japan.

P. griffithii: India.

P. nigra: Norway.

P. roxburghii: India.

P. sylvestris: Esthonia, Germany, Great Britain, Norway, Switzerland.

P. thunbergii: Japan.

Coleosporium clerodendri Diet. (xxx) rust

Causes yellow to orange rust pustules on lower leaf surfaces of *Clerodendrum*. Distributed in China, Formosa, Japan, and Java.

Clerodendrum fragrans: Formosa.

C. trichotomum: China, Formosa, Japan.

C. villosum: Japan.

Coleosporium eupatorii Arth. ex Cumm. (xxx) pine rust

Causes rust on needles of *Pinus koraiensis*, a five-needled pine, with an alternate stage of golden rust on leaves of *Eupatorium*. Distributed in Central America, West Indies, China, and Japan.

Pinus koraiensis: Japan.

Coleosporium euphrasiae (Schum.) Wint. (xxx) rust

Causes rust on needles of hard pines and on leaves of *Clerodendrum* and *Euphrasia*. Distributed in Europe, Siberia, Tibet, and Japan.

Clerodendrum villosum: Japan.

Pinus sylvestris: Switzerland, Estonia, Germany, Great Britain.

Coleosporium inulae (Kunze) E. Fisch. (xxx) **rust**

Causes yellow rust pustules on foliage of *Pinus* and *Inula*. Distributed in Europe, Palestine, India, Canary Islands, northern Africa, and the Congo.

Pinus halepensis: Spain.

P. roxburghii: India.

P. sylvestris: Estonia, Germany, Switzerland.

Coleosporium melampyri (Reb.) Karst. (xxx) **rust**

Causes white tubular outgrowths, containing yellow spores, on needles of hard pines. These spores infect leaves of *Melampyrum* and form yellow rust pustules on the lower leaf surface, which are followed by reddish waxy crusts. The latter are the overwintering stage of the fungus. Distributed in northern and central Europe, and in eastern Asia.

Pinus mugo: Europe.

P. sylvestris: Estonia, Finland, Germany, Great Britain, Switzerland.

Coleosporium petasitis Lév. (xxx) **rust**

Forms flattened upright tubules on the needles of *Pinus sylvestris*, containing yellow dusty spores. These tubules are followed by yellow rust pustules on leaves of *Petasites*. Distributed in Europe, Siberia, and Japan.

Pinus nigra: Great Britain.

P. sylvestris: Estonia, Great Britain, Japan, Siberia, Switzerland.

Coleosporium phellodendri Kom. (xxx) **rust**

Causes yellowish-white rust pustules on the lower leaf surface of *Phellodendron*, followed by gelatinous orange pustules. Known in China, Japan, Manchuria, Korea, and Siberia.

Phellodendron amurense: China, Japan, Manchuria, Siberia (Ussuri).

P. lavalleyi: Japan.

P. sachalinense: China.

Coleosporium pinicola (Arth.) Arth. (xxx) **Virginia pine rust**

Autoecious. Forms yellow to orange-red waxy pustules breaking the leaf epidermis. Affected needles discolor gradually and finally may be shed. Diseased trees are apt to have but a single set of leaves of one year and appear bare. Defoliation may occur before the last-formed needles are fully grown. Distributed in North America from Delaware to eastern Tennessee. It is also reported from western Siberia and in Kamchatka.

Pinus cembra var. *sibirica*: Siberia.

P. pumila: Kamchatka.

Coleosporium saussureae Thuem. (xxx) **rust**

Forms golden rust pustules on leaves of *Saussurea* and on needles of five-leaved pines. Distributed in southern Siberia, Manchuria, Kamchatka, Kurile Islands, Sakhalin Island, Japan, eastern and northern China.

Pinus cembra var. *sibirica*: Siberia.

P. pumila: Japan.

Coleosporium senecionis Fr. ex Kickx (xxx) rust

Forms large tongue-shaped outgrowths on needles of pines and later orange pustules on leaves of *Senecio*. Distributed in the North Temperate Region of the Old World, Syria, Japan, the Himalayas, and Philippines; in North America, apparently introduced at widely separated points but not established so far as known. Also in South America.

Pinus sp.: Russia.

P. halepensis: France, Italy.

P. mugo: Denmark, Austria.

P. nigra: Austria, Belgium, Denmark, France, and Great Britain.

P. nigra var. *poiretiana*: Europe.

P. pinaster: France.

P. pumila: Kamchatka.

P. sylvestris: Belgium, Denmark, Estonia, France, Germany, Great Britain, Ireland, Sweden.

Coleosporium sonchi (Strauss) Lév. ex Tul. (xxx) rust

Forms large tongue-shaped hollow outgrowths, containing yellow spores, on needles of hard pines. Later leaves of *Sonchus* bear yellow, powdery rust pustules and still later waxy crusts under the leaf epidermis, which are the overwintering stage of the fungus. Found in North America at a single place in Wisconsin and not believed to be established there. Prevalent in Europe.

Pinus sylvestris: Estonia, Germany, Great Britain, Switzerland.

Coleosporium tussilaginis (Pers.) Lév. (xxx) rust

Forms tubules on pine needles containing rust spores and later rust pustules on leaves of *Tussilago*. Distributed in Europe.

Pinus sylvestris: Estonia, Germany, Great Britain, Switzerland.

Colletotrichum dematium (Fr.) Grove (xxx) anthracnose

Causes elongate lesions along the petioles and veins of leaves. Known only from Portugal.

Platanus orientalis: Portugal (Coimbra).

Colletotrichum gloeosporioides Penz. (xxx) anthracnose

Causes leaf spots, cankers, and dieback of many trees of the Tropics and warmer temperate regions. Has been given numerous names which von Arx (1957) states are all synonyms of *Colletotrichum gloeosporioides*. [Arx, J. A. von. Die Arten der Gattung Colletotrichum Cda. Phytopath. Ztschr. 29: 413-468. 1957.]

Alchornea rugosa: Moluccas (Amboina), Philippines.

Aleurites sp.: Nyasaland.

A. fordii: French Equatorial Africa.

A. montana: French Equatorial Africa, Indochina.

Alstonia scholaris: Philippines.

Bischofia javanica: Java.

Ceratonia siliqua: Italy.

Cinnamomum burmannii: Italy.

C. camphora: Mauritius.

- Clerodendrum infortunatum*: India.
Coffea arabica: El Salvador, Guatemala, Jamaica, Java, Kenya, Madagascar, Peru, Puerto Rico, Venezuela.
C. canephora var. *robusta*: Ceylon.
C. liberica: Java.
Eucalyptus cladocalyx: Australia (Melbourne).
Ficus benjamina: Java.
F. elastica: Java, Scotland (Glasgow).
Garcinia dulcis: Java.
Hevea sp.: Indochina, Uganda.
H. brasiliensis: Ceylon, Congo, Brazil, French Equatorial Africa, India, Indochina, Malaya, Mexico, Peru, Philippines, Sumatra.
Mangifera indica: British Guiana, Colombia, El Salvador, Guatemala, Hawaii, Malaya, Mauritius, Peru, Philippines, Puerto Rico, Sierra Leone, Union of South Africa, Venezuela.
Palaquium oblongifolium: East Indies.
Persea americana: El Salvador, Guatemala, Jamaica, Puerto Rico, Venezuela.
Pithecellobium scutiferum: Java.
P. unguis-cati: Puerto Rico.
Prosopis ruscifolia: Argentina.
Theobroma cacao: Guatemala, São Tomé, Surinam, Mauritius, Uganda, West Indies (Antilles).

Colletotrichum heveae Petch (x) **anthracnose**

Causes irregular leaf spots to large blotches, gray brown with purple-brown margins on old *Hevea* leaves in Brazil and Ceylon. Dead areas are apt to fall out. Distributed in Brazil, India, Ceylon, Malaya, Andaman Islands, and French Equatorial Africa.

Hevea brasiliensis: Andaman Islands, Brazil, Ceylon, French Equatorial Africa, India, Malaya.

Colletotrichum hsienjenchang Hino & Hidaka (x) **bamboo blight**

Causes rot of living *Phyllostachys* shoots in Japan.

Phyllostachys bambusoides: Japan.

P. nigra var. *henonis*: Japan.

Collybia velutipes Curt. (xx) **white sap rot**

Causes a soft white sapwood rot of numerous hardwoods. Fruits in frosty weather. Shaped like a small, tawny umbrella with vertical gills beneath bearing the spore-bearing parts and with a velvety stem. Mostly saprophytic but can attack living trees through large, open wounds exposing the wood. Distributed widely in North America from Alaska to Mexico; also in Europe, Asia, and Australia.

Aesculus hippocastanum: Germany.

Fraxinus sp.: Austria.

Populus sp.: Austria.

Salix sp.: Czechoslovakia, Austria.

Tilia sp.: Austria.

Ulmus sp.: Austria.

Coniophora bourdotii Bres. (x) **conifer butt rot**

A resupinate, effused fungus with umber hymenium and brown spores. Causes brown butt rot in living coniferous trees. Known in the British Isles, France, and Sweden.

Pinus sylvestris: Sweden.

Coniophora olivacea (Fr.) Karst. (xx) **butt rot**

An olive-colored resupinate fungus with olive or yellow-brown spores. Causes cubical butt rot of living broad-leaved and coniferous trees. Distributed in North America, Europe, and northern Asia.

Picea abies: Norway.

Coniophora puteana (Fr.) Karst. (xx) **butt rot**

A yellowish to fuscous olivaceous resupinate fungus with white flesh and olivaceous or ferruginous spores. Causes brown butt rot mostly of conifers. Distributed in North America from Quebec to District of Columbia and westward to British Columbia, California, and southward in Mexico. Also in Europe, Siberia, and South Africa.

Abies sibirica: Siberia.

Betula sp.: Russia.

Crataegus oxyacantha: Denmark.

Hippophaë rhamnoides: Denmark.

Juniperus communis: Denmark.

Larix decidua: Great Britain.

Picea abies: Denmark.

Pinus sylvestris: Sweden.

Salix amygdalina: Denmark.

Coniothyrium betulae Lamb. (xx) **wilt**

Associated with constriction of young birch stems and resulting wilt of distal parts. Known in Germany.

Betula sp.: Germany (Saxony).

Coniothyrium cocoas P. Henn. (x) **leaf spot**

Occurs as pimples on brown spots of leaves in East Africa.

Cocos nucifera: East Africa (Usambara).

Coniothyrium heveae Saccas (xx) **leaf spot**

Forms erumpent pustules associated with *Didymosphaeria polyspora* Cantournet on large, irregular, necrotic spots on *Hevea* leaves. Known in French Equatorial Africa.

Hevea brasiliensis: French Equatorial Africa.

Corbulopsora clemensiae Cumm. (xxx) **rust**

Forms a deeply immersed cupulate stage of rust on *Olearia* leaves, followed by a pale yellow stage with an overwintering chestnut-brown stage intermixed. Known only in New Guinea.

Olearia sp.: New Guinea.

Corbulopsora graviga Cumm. (xxx) **rust**

Forms cupulate to cylindrical rust pustules on leaves of *Olearia* in New Guinea. The late stage is yellow brown with an outside membrane holding together the elongate telia. Known only in New Guinea.

Olearia sp.: New Guinea.

Corticium bombycinum (Sommerf.) Bres. (xx) **wood rot**

Causes wood decay of *Salix* and occasionally other trees with large open wounds. Pollarded trees are especially liable to attacks. The fruiting body is flat on the surface of exposed wood or dead bark, relatively thick, white, cream, or pale yellowish brown, membranaceous. Distributed in North America and Europe.

Salix sp.: Great Britain.

Corticium comedens Nees (x)

A flesh-colored, thin, crusty fungus that occasionally attacks hardwoods growing in thick stands and not growing with normal vigor. In Denmark it is reported as killing pole-sized trees. Distributed in temperate United States and Europe; and is reported from Morocco, Ceylon, and Australia.

Alnus sp.: Denmark.

Quercus sp.: Denmark.

Corticium galactinum (Fr.) Burt (xx) **stringy white butt rot**

Causes stringy white root and butt rot of conifers and broad-leaved trees. Fruiting bodies are white, creamy or ochraceous, resupinate, effused, perennial, on roots, logs, and duff. Largely saprophytic, but can attack living roots touching dead wood infected by it in the soil. Has done much damage in orchards and rather recently has been found causing much damage in native forest stands. Distributed in North America and West Indies; known in Czechoslovakia, Poland, Finland, Siberia, and Japan. Probably much more important than is generally known.

Abies alba: Czechoslovakia.

Alnus sp.: Poland.

Pinus sp.: Finland.

Corticium odoratum (Fr.) Bourd. & Galz. (x) **root rot**

Much like *Corticium galactinum* but spores of *C. odoratum* are larger and clamp connections are lacking in thin-walled hyphae.

Abies alba: Czechoslovakia.

Picea abies: Czechoslovakia.

Pinus sp.: Sweden.

Quercus robur: Sweden.

Corticium penicillatum Petch (xxx) **thread blight**

Causes thread blight of coconut, blighting the leaves and even killing large groups of trees. Distributed in Ceylon, New Guinea, and New Hebrides.

Cocos nucifera: Ceylon, New Guinea, New Hebrides.

Corticium repens Berk. (xxx) **white thread blight**

Forms white mycelial strands on the bark which run upward to the leaves of broad-leaved trees. As it ascends, branches are given off to smaller branches or twigs. Fungus pads form at the axils of twigs

and leaves. It causes early defoliation and death of young terminal buds—dieback. Known in India.

Anogeissus latifolia: India.
Bauhinia malabarica: India.
Buchanania latifolia: India.
Combretum decandrum: India.
Eugenia cumini: India.
E. heyneana: India.
Ichnocarpus frutescens: India.
Oroxylum indicum: India.
Shorea robusta: India.
Terminalia bellerica: India.
T. tomentosa: India.

Corticium salmonicolor Berk. & Br. (xxx)

pink disease

Causes the widespread pink disease of the Tropics, which attacks practically all woody plants. It occurs on the trunks and branches, first appearing as white or pink pustules on the dead bark. Then a pink mycelial layer spreads over the bark, breaks up in patches, and fades to a dirty white color. The outer wood layers are also killed.

Distributed in Florida, Mexico, Central America, Colombia, British Guiana, Surinam, Trinidad, Peru, Brazil, Caucasus, Tropical Africa, Asia, East Indies, and Australia.

Acacia confusa: Formosa.
A. decurrens: Mauritius.
A. leucophloea: East Indies.
Artocarpus heterophyllus: Ceylon, East Indies, Malaya.
Bixa orellana: Java.
Bombax malabaricum: Formosa.
Buchanania sp.: East Indies.
Butea monosperma: East Indies.
Castilla elastica: East Indies.
Casuarina equisetifolia: Mauritius.
Cinchona officinalis: East Indies, Guatemala, India, Peru.
C. pubescens: Colombia, East Indies, Guatemala.
Cinnamomum camphora: Malaya.
Coffea arabica: Congo, Java.
C. liberica: Java.
Durio zibethinus: Malaya.
Erythroxylon coca: Java.
Eucalyptus sp.: Brazil.
Ficus carica: Formosa.
F. vogelii: East Indies.
Hevea brasiliensis: Andaman Islands, Borneo, Brazil, Congo, East Indies, French Equatorial Africa, Guatemala, India, Indochina, Malaya, Mexico.
Lansium domesticum: Malaya.
Leucaena glauca: East Indies.
Michelia fuscata: Formosa.
Morus australis: Formosa.
M. indica: Tanganyika.
Palaquium oblongifolium: Malaya.
Pithecellobium dulce: East Indies, Formosa.
Populus sp.: Mauritius.

P. nigra: Brazil.

Schleichera oleosa: East Indies.

Shorea sp.: Malaya.

Swietenia macrophylla: Java.

S. mahagoni: Java.

Tabernaemontana coronaria: Formosa.

Tamarindus indica: East Indies.

Tectona grandis: Java, Sumatra.

Theobroma cacao: Brazil, Congo, Dominican Republic, Malaya, Puerto Rico.

Corticium theae Bern. (xxx)

black thread blight

Forms brown fungus strands over infected leaves and twigs, which turn black and die back. It is one of the so-called thread-blight diseases. Distributed in Ceylon, India, Java, and Sumatra.

Erythroxylon coca: Ceylon.

Corynelia brasiliensis Fitzp. (xxx)

tar spot

Forms small, roughened, black stromata mostly on the lower leaf surface and stem of *Podocarpus*. Known only in Brazil.

Podocarpus lambertii: Brazil.

Corynelia fruticicola (Pat.) Hoehn. (xxx)

tar spot

Forms small cushion-shaped, black stromata on fruits of *Myrsine* and *Rapanea* in China, India, and South Africa.

Myrsine africana: India.

M. melanophleos: Union of South Africa.

Rapanea melanophloeos: Union of South Africa.

Corynelia jamaicensis Fitzp. (xxx)

tar spot

Forms round to elliptical black stromata on *Podocarpus* leaves. Known only in Jamaica and Cuba.

Podocarpus purdieanus: Jamaica.

Corynelia nipponensis Fitzp. (xxx)

tar spot

Forms black stromata on *Podocarpus* leaves. Known only from Japan in a single collection.

Podocarpus macrophyllus: Japan.

Corynelia oreophila (Speg.) Starb. (xxx)

tar spot

Forms black stromata chiefly on the lower leaf surface of *Podocarpus*. Distributed in Costa Rica, Colombia, Bolivia, Brazil, Chile, and Argentina.

Podocarpus angustifolius: Argentina, Bolivia.

P. macrostachys: Costa Rica.

P. sellowii: Brazil.

Corynelia portoricensis Fitzp. (xxx)

tar spot

Forms thickened black stromata on leaves of *Podocarpus* in Puerto Rico. Known only in type locality.

Podocarpus coriaceus: Puerto Rico.

Corynelia tropica (Auersw. & Rab.) Starb. (xxx) tar spot

Forms irregular black stromata on leaves and stems of *Podocarpus*. Distributed in Chile, the Philippines, and New Zealand.

Podocarpus andinus: Chile.

P. costalis: Philippines.

P. salignus: Chile.

Corynelia uberata Fr. (xxx) tar spot

Forms black stromata on leaves, stems, and fruits of *Podocarpus*. Distributed in Japan, New Zealand, Equatorial and South Africa, and Australia.

Podocarpus elongatus: Japan, Union of South Africa.

P. gracilior: East Africa.

P. latifolius: Union of South Africa.

P. milanjanus: Congo, Uganda.

P. nagi: Japan.

P. spinulosus: Australia.

Coryneliospora fruticola (Pat.) Fitzp. (xxx) scab

Forms black, carbonous, superficial coating on fruits of *Myrsine* and *Rapanea*. Known in China, India, and South Africa.

Myrsine sp.: China.

M. africana: India.

Rapanea melanophloeos: Union of South Africa.

Coryneum cardinale Wagener (xx) cypress canker

Cypress canker and dieback occurs throughout the range of Monterey cypress in California. The future of the tree is threatened because of the limited range of the tree and the widespread range of the disease in California. On other continents *Cupressus macrocarpa* has shown phenomenal growth and has been planted extensively. Unfortunately, the canker disease has accompanied the tree to many of the foreign plantings. Known in Argentina, South Africa, Italy, France, Spain, New Zealand, and Australia. (See Handbook No. 100).

Cupressus macrocarpa: Argentina, Australia.

C. sempervirens: New Zealand, Spain.

Coryneum eucalypti F. Alm. & Camara (xxx) leaf spot

Causes small, irregular, white spots with brown margins on *Eucalyptus* leaves. Known only in Portugal.

Eucalyptus globulus: Portugal (Parcalhota).

Coryneum microstictum Berk. & Br. (xx) leaf spot

Causes small, whitish spots on leaves of *Arbutus* with a dark ring delimited by a reddish-brown halo. Known in Italy.

Arbutus unedo: Italy.

Coryneum mori Nomura (xx) mulberry canker

Causes girdling cankers of hardwoods on small branches and twigs, resulting in wilt of leaves on distal parts. Nursery trees have been seriously damaged. Known in Kashmir and Japan.

Celtis caucasica: India.

Morus alba: India, Japan.

Coryneum myristicae Steinm. (xxx) **nutmeg blight**

A disease known as early as 1898 in Java. Causes greenish-black sunken spots 0.5 to 2 cm. across on husks of diseased fruits, while inner tissues show brown discolorations. Heavy damage results from ruined fruits, reaching more than 60 percent in severe outbreaks. Known only in the East Indies.

Myristica fragrans: Java.

Cristulariella depraedans (Cke.) Hoehn. (xxx) **maple leaf wilt**

Forms large, gray, nonmarginate spots which coalesce and cause sudden wilting of the leaf and final defoliation. On the lower side of the wilted leaves small, white tufts form, mostly on the main veins of the leaves. Inoculations succeed under high air moisture conditions. Distributed in the United States in Connecticut and Vermont; also in England and Germany.

Acer pseudoplatanus: England, Germany.

Cronartium bresadoleanum P. Henn. (xxx) **felt rust**

Forms brown felt rust on leaves. Known in tropical Africa.

Erythroxylon sp.: Africa (tropical).

Cronartium byrsonimatis P. Henn. (xxx) **felt rust**

Forms brown rust pustules and brown, coarse felty growth on leaves in Brazil.

Byrsonima coccolobaefolia: Brazil (Sao Paulo).

Cronartium coleosporioides (Diet. & Holw.) Arth. (xxx) **felt rust**

Forms rust pustules on leaves and stems of herbs of the family Scrophulariaceae, followed in late summer by the coarse, felty, overwintering stage. The next spring, young shoots of hard pines in the neighborhood may become infected by the spores of the overwintered stage and develop none or rather slight spindle-shaped swellings or pronounced galls with rust blisters breaking through the bark. Some forms of this fungus also have the ability to spread from pine to pine without alternate hosts. Distributed from Alaska to the Mexican boundary and eastward to western Nebraska; also in Central and South America. Probably a collective species.

Pinus sp.: Guatemala.

Cronartium conigenum Hedgc. & Hunt (xxx) **pine cone-oak rust**

Forms powdery, yellow rust pustules on *Quercus* leaves followed by a brown, felty, overwintering stage on the same leaves. Infection of young developing pine cones occurs the next spring. They become much hypertrophied and bear yellow rust pustules in 2 to 3 years after infection. Distributed in Arizona, Costa Rica, Guatemala, and Mexico.

Pinus leiophylla: Guatemala, Mexico.

P. leiophylla var. *chihuahuana*: Mexico.

P. montezumae: Guatemala, Mexico.

P. oocarpa: Mexico.

P. pseudostrobus: Mexico.

Quercus sp.: Guatemala, Mexico.

Q. oocarpa: Costa Rica.

Q. peduncularis: Guatemala.

Cronartium egenulum H. & P. Syd. (xxx) rust

Forms columnar fungus bodies on the lower leaf surface of *Miconia*. Known in Brazil.

Miconia milleflora: Brazil (Sao Paulo).

Cronartium flaccidum (Alb. & Schw.) Wint. (xxx) felt rust
[=*Peridermium pini* var. *corticola* (Link) Rab.]

Forms yellow rust pustules on leaves of many herbaceous plants, followed by a brown, felty, overwintering stage on the same leaves. *Pinus sylvestris* is the principal pine host. The rust has a short-cycle strain able to spread directly from pine to pine also, and it has long been known as *Peridermium pini* var. *corticola*. Distributed in Europe, Siberia, China, India, and Japan. It was found in North America on Prince Edward Island but has not been seen there since.

Pinus griffithii: India.

P. halepensis: Belgium, France.

P. mugo: France, Norway.

P. mugo var. *rostrata*: Norway.

P. nigra: Trieste.

P. pinaster: Belgium, France, Italy.

P. sylvestris: Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, England, Finland, France, Germany, Ireland, Latvia, Norway, Poland, Russia, Scotland, Sweden, Switzerland.

P. tabulaeformis var. *yunnanensis*: China.

Cronartium himalayense Bagchee (xxx) pine-Swertia felt rust

Heteroecious on *Pinus roxburghii* with *Swertia* spp. as alternate hosts. Resembles *Cronartium ribicola* in its action on the pines. Distributed in India, Pakistan, and the Philippines. A destructive rust. Its introduction into other regions with extensive hard pine forests should be avoided until more is known of its virulence on other pines and *Swertias*.

Pinus roxburghii: India, Pakistan.

Cronartium jacksoniae P. Henn. (xxx) felt rust

Presumably heteroecious, but no coniferous host is known. Has uredal and telial stages on leaves and shoots of leguminous shrubs. The shoots are deformed, being stimulated into forming witches'-brooms. Distributed in Australia in Queensland, Victoria, and Tasmania.

Bossiaea cinerea: Australia (Tasmania).

Platylobium formosum: Australia (Victoria).

Cronartium kamtschaticum Jørst. (xxx) pine felt rust

Heteroecious. Believed, but not proved, to live on *Pinus pumila* and to have as alternate hosts *Castilleja* and *Pedicularis*. Reported in Kamchatka; probably also in Siberia (Yakutsk Region), South Sakhalin, Kuriles, and Japan.

Pinus pumila: Japan, Kurile Islands.

Cronartium kemangae Rac. (xxx) rust

Forms brown rust pustules on leaves of *Mangifera*. Known only in Java.

Mangifera caesia: Java.

Cronartium keteleeriae Tai (xxx)

rust

Forms cylindric fungus spore columns, more or less compressed laterally, 2.5 to 6 mm. long, and cadmium orange in color, on leaves of *Keteleeria* in China.

Keteleeria evelyniana: China (Yunnan).

Cronartium malloti Rac. (xxx)

rust

Forms golden-yellow to reddish-brown rust pustules on *Melanolepis* leaves. Known in Java and the Philippines.

Melanolepis multiglandulosa: Java, Philippines.

Cronartium quercuum (Cke.) Miyabe (xxx)

Asian pine-oak blister rust

This rust greatly resembles the American eastern pine-oak blister rust, *Cronartium cerebrum* (Pk.) Hedgc. & Long. In fact, the two have been accepted as identical until recently when significant differences were found. Oaks are principal alternate hosts of both species. *C. quercuum* is known definitely in China and Japan. A similar rust is known in Europe, and presumably the same species is the one known in Siberia, India, Korea, and Pakistan.

Castanea crenata: China, Japan.

C. henryi: China.

C. mollissima: China, Japan.

Castanopsis cuspidata: Japan.

Fagus japonica: Japan.

Pinus densiflora: Japan.

P. khasya: India, Philippines.

P. luchuensis: Japan.

P. massoniana: China.

P. sylvestris: Japan, Russia.

P. tabulaeformis var. *yunnanensis*: China.

P. thunbergii: Japan.

Quercus sp.: China, Pakistan.

Q. acuta: Japan.

Q. acutissima: China, Japan.

Q. coccinea: Germany.

Q. dentata: China, Japan.

Q. fabri: China.

Q. glandulifera: China, Japan, Korea.

Q. glauca: China, Japan.

Q. griffithii: India.

Q. ilex: Italy, Japan.

Q. mongolica: Japan, Korea, Siberia (Amur region).

Q. mongolica var. *grosseserrata*: Japan.

Q. myrsinaefolia: Japan.

Q. neostuzbergii: Japan.

Q. nigra: Germany.

Q. palustris: Japan.

Q. petraea: Japan.

Q. variabilis: China, Japan.

Q. velutina: Germany.

Cronartium ribicola J. C. Fisch. (xxx) **white pine blister rust**

Heteroecious on five-needle pine stems and branches, and *Ribes* leaves as alternate hosts. Asia is believed to be the home of this fungus. In the last 100 years it has extended its range over Europe and temperate North America and has practically traversed the North Temperate Zone from east to west, completely encircling the earth. As the parasite requires *Ribes* to complete its life cycle, removal of *Ribes* to a sufficient distance from five-needle pines will control its attacks. At heavy expense, justified by the high value of white pine forests, a catastrophe like that of the chestnut blight can be, and is being, avoided in North America.

Pinus ayacahuite: Belgium, England, Scotland.

P. cembra: England, Germany, Norway, Russia, Scotland, Switzerland.

P. cembra var. *sibirica*: Poland, Siberia.

P. griffithii: Belgium, Denmark, England, Germany, India, Japan, Pakistan, Scotland.

P. koraiensis: Germany, Sweden.

P. parviflora: Scotland, England.

P. peuce: Finland, Germany, Russia, Wales.

P. pumila: Kamchatka.

Cronartium strobilinum Hedgc. & Hahn (xxx) **pine cone-oak rust**

Forms yellow rust pustules with very abundant powdery masses of spores on the scales of hypertrophied infected cones of pines. Chestnut and oak leaves near the diseased pines are infected and develop early yellow powdery pustules followed by slender filamentous outgrowths of a brown color, the usual overwintering stage of the fungus. Infected leaves of evergreen oaks also carry the fungus over winter to begin a new life cycle. Known from Illinois to Texas, Florida, Virginia, and Cuba.

Quercus virginiana: Cuba.

Crossopora antidesmae-dioicae (Rac.) Arth. & Cumm. (xxx) **felt rust**

Forms yellow rust pustules on the lower leaf surfaces of *Antidesma* followed by telial columns, yellow-brown to brown and 0.5 to 1.5 mm. long. Distributed in Java, New Guinea, Philippines, and Uganda.

Antidesma ghesaembilla: Philippines, New Guinea.

A. venosum: Uganda.

Crossopora fici Arth. & Cumm. (xxx) **rust**

Forms cinnamon-brown pulverulent rust pustules on *Ficus* leaves, followed by filamentous outgrowths on the lower side of the leaves. Known in Uganda and Philippines.

Ficus capensis: Uganda.

Crossopora malloti (Rec.) Cumm. (xxx) **rust**

Forms brown erumpent-pulvinate, subepidermal and *not* filiform rust pustules. Known in New Guinea.

Mallotus sp.: New Guinea.

Crossopora notata (Arth. & J. R. Johnston) Arth. (xxx) **felt rust**

Forms brown rust pustules on leaves of *Byrsonima* followed by brown, stout, and short columnar outgrowths. Distributed in Cuba, Dominican Republic, and Puerto Rico, Guatemala, Bolivia, Venezuela, and Brazil.

Byrsonima crassifolia: Bolivia, Cuba, Dominican Republic, Guatemala, Puerto Rico, Venezuela.

B. intermedia: Brazil.

Crumenula pinicola (Fr.) Karst. (xx) **pine dieback**

Causes cankers on branches and stems of pines and resulting dieback. Apparently rare in the United States; generally distributed in Europe.

Pinus mugo: Denmark, Norway.

P. mugo var. *rostrata*: Norway.

P. nigra: Denmark, Netherlands.

P. nigra var. *poiretiana*: Belgium, Netherlands.

P. sylvestris: France, Netherlands, Norway, Sweden.

Crumenula sororia Karst. (xx) **pine dieback**

Causing cankers and dieback on small stems and twigs of pines. Reported in Finland, Netherlands, and Siberia.

Pinus cembra var. *sibirica*: Siberia.

P. nigra: Netherlands.

P. nigra var. *poiretiana*: Netherlands.

P. sylvestris: Netherlands.

Cryptochaete rufa (Fr.) Karst. (xxx) **hardwoods heart rot**

Pilei gregarious, purplish red, breaking through the host epidermis; centrally attached, margin free, discoid, 2 to 4 mm. across, smooth to wrinkled with age, hymenium smooth. On *Populus* and other hardwoods in northern regions of North America and Europe. Causing a white pocket rot of heartwood of living trees.

Quercus sp.: Germany.

Cryptocline taxicola (Allesch.) Petr. (xxx) **yew anthracnose**

Conidial pustules form on anthracnose lesions on *Taxus* needles. Distributed in northern Europe and Italy.

Taxus sp.: France, Italy.

T. baccata: Denmark, Great Britain, Norway.

Cryptodiaporthe castanea (Tul.) Wehm. (xx) **chestnut canker**

Causes cankers on Asiatic species of *Castanea* of all ages up to 50 years or more. It is known in 18 of the United States and in Europe in Great Britain, France, Netherlands, Germany, and Italy.

Castanea crenata: France.

C. dentata: Switzerland.

C. sativa: France, Great Britain.

Cryptomyces maximus (Fr.) Rehm (xxx) **willow canker**

Causes bark canker of willow stems and shoots. The fungus forms a thick hyphal cushion under the bark, which is split open by continuing growth-pressure from within and large patches of bark are shed. Large open wounds are produced causing death of distal parts in many cases. Distributed in the United States and Europe.

Salix alba: Denmark.

S. alba var. *calva*: Great Britain.

S. candida: Germany.

S. daphnoides: Denmark.

S. fragilis: Denmark, Scotland.

S. phylicifolia: Norway.

S. purpurea: Germany.

S. repens: Denmark.

S. ×smithiana: Denmark.

Cryptospora suffusa (Fr.) Tul. (xx) **alder dieback**

Causes dying of *Alnus* branches in early summer after leafing out. Distributed in the United States and Europe.

Alnus glutinosa: Denmark.

A. incana: Denmark.

Cryptosporella araucariae Vogl. (xx) **stem rot**

Associated with decay of stems of *Araucaria* seedlings. Known only in Italy.

Araucaria araucana: Italy.

Cryptosporella eugeniae Nutman & F. M. Roberts (xx) **clove dieback**

Causes dieback of branches of older trees and "sudden death" of younger ones, due to girdling. The fungus enters injuries, which are abundant on bearing trees because of careless haste in harvesting the flowering branches. Injured branches are infected and die downward to the trunk. This is partially or completely girdled, and the tree is killed or nearly killed so that it is useless. Known in Zanzibar only.

Eugenia caryophyllata: Zanzibar.

E. jambos: Zanzibar.

Cryptostroma corticale (Ell. & Ev.) Greg. & Waller (xx) **sooty bark disease**

Causes wilt of scattered branches of *Acer*, but the leaves remain hanging on the twigs. Usually only a part of a tree wilts and dies back. Foliage the next spring is lacking on affected branches, and blisters, mostly elongated vertically, appear on the bark. Within is a sheet of white mycelium, changing to bluish green with age; this is later covered with abundant black spores. The outer bark slowly peels off, and the exposed sooty spores are not easily wet and suggest the name "sooty bark."

The disease, which was first noted in 1945 in England, spread aggressively on *Acer pseudoplatanus* and caused alarm as to the future of that tree. It was discovered in 1947 at Paris and, for a few years, spread threateningly. More recently it has died down

and appears to be rather unimportant. Reported in 1889 from North America in Wisconsin, Ontario, and Michigan (apparently saprophytic); also in Norway, England, and France (parasitic).

Acer negundo: France (Grenoble).

A. platanoides: Great Britain (Essex and London), Norway.

A. pseudoplatanus: France, Great Britain.

Cucurbitaria laburni Pers. (x) dieback

Forms rough projecting groups of coriaceous black perithecia on twigs of *Laburnum* associated with twig dieback. Distributed in the United States and generally in Europe where its host is grown.

Laburnum anagyroides: Germany.

Cucurbitaria naucosa (Fr.) Fckl. (xx) elm dieback

Similar to *Cucurbitaria laburni*, which see. Occurs on cankers and causes dieback of small branches, and finally death of *Ulmus* trees. Distributed in British Isles, France, Germany, Switzerland, and Sweden.

Ulmus glabra: Switzerland.

Cucurbitaria piceae Borthw. (xx) spruce bud blight

Forms a black stroma covering the buds of *Picea*. Infection is followed by swelling of the buds. New growth is mostly suppressed. The infected shoots are thin with short needles and are likely to die prematurely. Damage caused is appreciable. Distributed in Scotland, Germany, and Switzerland.

Picea abies: Germany, Scotland.

Cucurbitaria pithyophila (Fr.) de N. (x)

Occurs on living branches of *Abies*, *Picea*, and *Pinus* trees and seedlings. Forms nodules on branches and kills small seedlings. Distributed widely in the United States and in Europe; also reported in Japan.

Abies alba: Germany.

A. nordmanniana: Germany.

Picea abies: Germany, Norway.

Pinus cembra: Germany.

P. sylvestris: Germany, Norway, Scotland.

Cucurbitaria sorbi Karst. (xx) dieback

Occurs on wounded twigs and branches of *Sorbus* causing dieback. Damaging to nursery stock. Reported in New York and in Finland and Germany.

Sorbus aucuparia: Germany.

Cylindrocladium quinqueseptatum Boed. & Reitsma (xxx) clove leaf spot

Occurs on circular, whitish, red-edged spots and irregular brown patches on leaves of *Eugenia* seedlings. Known only from Java.

Eugenia caryophyllata: Java.

Cylindrocladium scoparium Morg. (xxx) root rot

Causes root rot of numerous conifers and broad-leaved species; also dieback of older trees. Many species mentioned as susceptible are exotics in those places where the fungus has been damaging. It is widely distributed in the United States, Canada, West Indies, South America, Europe, Asia, South Africa, East Indies, Australia, and Tasmania.

Acacia decurrens var. *mollis*: Union of South Africa.

Dipholis salicifolia: Jamaica.

Eucalyptus sp.: Argentina, Brazil.

E. citriodora: Japan.

E. coccifera: Japan.

E. gigantea: Japan.

E. globulus: Japan.

E. gunnii: Japan.

E. longifolia: Japan.

E. obliqua: Japan.

E. pauciflora: Japan.

E. regnans: Japan.

E. resinifera: Japan.

E. robusta: Japan.

E. saligna: Japan.

E. tereticornis: Japan.

E. viminalis: Japan.

Cylindrosporium castaneae (Lév.) Krenner (x) leaf spot

Occurs on very small, dark-brown spots on leaves of *Castanea*. Infected leaves twist spirally and are shed prematurely. Distributed in the United States and Europe.

Castanea sativa: Hungary.

Cylindrosporium kelloggii Ell. & Ev. (xxx) black-oak leaf spot

Causes small spots, 1 to 2 mm. in diameter, first dark brown, then with a small white center and dark brown margins; often coalesce up to 0.5 to 1 cm. Known in California and Oregon on *Quercus kelloggii* and in Brazil on *Q. robur*.

Quercus robur: Brazil.

Cylindrosporium koenigii Thirum. (xxx) leaf spot

Occurs on whitish leaf spots 3 to 10 mm. in diameter, epiphyllous, slightly raised and appearing as anthracnose patches on *Murraya*. Known only in India.

Murraya koenigii: India.

Cylindrosporium maculans (Allesch.) Jacz. (x) leaf spot

Occurs on spots on *Morus* leaves. Distributed in Russia, Poland, Yugoslavia, Albania, and Denmark.

Morus alba: Russia (Tashkent).

Cystopsora oleae Butl. (xxx) leaf rust

Forms rust pustules on light brown leaf spots on *Olea*. Distributed in India, Ceylon, and Pakistan.

Olea dioica: India, Pakistan.

Cytidia salicina (Fr.) Burt (xx) **canker**

Causes stem cankers of willows, especially in basket willow plantations, and of poplars and occasionally other broad-leaved north temperate species. Generally distributed in Alaska, Canada, United States, Europe, and also reported in Algeria, South Africa, and Siberia.

Populus sp.: Great Britain.

Salix sp.: Austria, Estonia, Finland, Norway, Siberia (Tara, Ussuri).

S. aurita: Great Britain.

S. caprea: Norway.

Cytodiplospora mori I. Miyake (xx) **twig blight**

Forms black thickened stromata that burst the overlying epidermis of *Morus* twigs. Haustoria enter the host cells. Known only in Japan.

Morus alba: Japan.

Cytospora abietis Sacc. (xx) **conifer canker**

Many *Cytospora* species have been proved to be imperfect stages of *Valsa* species. The *Cytosporas* are much more abundant, and more aggressive in attacking living trees, while the *Valsa* stages are rather uncommon and appear later than the *Cytospora* stages. It seems best to list each as given by the authors of the articles indexed.

Cytospora abietis forms small erumpent subepidermal pustules oozing abundant conidia, often in tendrils. Causes a canker of lower branches of conifers and spreads upward in an infected tree. Infection seems to be by entry into wounded bark. Inoculations into wounds have been successful. Drought may lower resistance to infection. Distributed in Canada, the United States, and Europe.

Larix decidua: Great Britain.

Cytospora ambiens Sacc. (xx) **dieback**

See general comments under *Cytospora abietis*. Associated with dieback of numerous broad-leaved species. Distributed generally in North and South America, and in Europe and Japan.

Alnus glutinosa: Denmark.

Betula pendula: Denmark.

Castanea crenata: France.

C. sativa: Belgium.

Cotoneaster sp.: Great Britain.

Fraxinus excelsior: Denmark.

Morus alba: Japan.

Populus nigra var. *italica*: Denmark.

Quercus sp.: Great Britain.

Salix sp.: Great Britain.

Ulmus sp.: Great Britain, Denmark.

U. glabra: Italy.

Cytospora atra Sacc. (x) **dieback**

See general comments under *Cytospora abietis*. Associated with dieback of *Morus* and *Broussonetia*. Distributed in Great Britain, Denmark, Germany, and India.

Morus alba: Great Britain (Kew).

Cytospora cenisia Sacc. (x) **juniper dieback**

See general account under *Cytospora abietis*. Associated with dieback of *Juniperus*. Distributed in the United States and Europe.

Juniperus communis: Finland, Germany, Italy.

J. virginiana: Finland, Germany, Italy.

Cytospora curreyi Sacc. (xxx) **conifer canker**

See *Cytospora abietis* for general life history. Causes cankers of branches of various conifers. Distributed in the United States and Europe.

Larix decidua: Great Britain.

Picea sp.: Great Britain.

Pinus strobus: Denmark.

P. sylvestris: Great Britain.

Cytospora pinastri Fr. (x) **blight**

See *Cytospora abietis* for general life history. A weak parasite causing blight of conifer needles occasionally. Widely distributed in the United States and Europe.

Abies alba: France, Scotland.

A. pinsapo: Spain.

Cytospora salicis Rab. (x) **willow dieback**

See *Cytospora abietis* for general account. Associated with twig dieback of *Salix*. Distributed in Alaska, Canada, and the United States, South America, Europe, and India.

Salix alba: England, Ireland, Scotland, Wales.

S. babylonica: Portugal.

S. fragilis: Great Britain.

S. pentandra: Great Britain.

S. purpurea: Great Britain.

S. viminalis: Great Britain.

Cytospora damnosa Petri (xx) **dieback**

See also *Cytospora abietis*. Causes dieback of twigs of pines in Italy. Inoculations succeeded. Known only in Italy.

Pinus pinaster: Italy.

Cyttaria berterii Berk. (xxx) **beech morel**

In antarctic lands there are a number of unique fungi that grow on the living branches of antarctic beeches. They are all parasitic and are eaten by the people of those regions. They are small, round to pear shaped, up to about 3 cm. wide; fleshy, with numerous sunken, rounded pits within which the spores are borne; usually in clusters on the branches, perennial. *Cyttaria berterii* lives on *Nothofagus obliqua* in Fuegia, Patagonia, and Chile; and on *N. glauca* in Chile.

Nothofagus glauca: Chile.

N. obliqua: Chile.

N. obliqua var. *macrocarpa*: Chile.

Cyttaria darwinii Berk. (xxx) beech morel

See *Cyttaria berterii* for a general description of the *Cyttarias*. Fruiting bodies white to gray, globular, 2 to 4 cm. in diameter with sunken pits 2 to 3 mm. across. Grows on *Nothofagus antarctica* and *N. betuloides* in Fuegia, Patagonia, and Chile.

Nothofagus antarctica: Chile, Argentina.

N. betuloides: Chile, Argentina.

N. pumilio: Chile, Argentina.

Cyttaria espinosae Lloyd (xxx) beech morel

See *Cyttaria berterii* for a general description of the *Cyttarias*. Parasitic on *Nothofagus*. Distributed in Chile and Argentina.

Nothofagus obliqua: Argentina.

N. procera: Chile, Argentina (Patagonia).

Cyttaria gunnii Berk. (xxx) beech morel

See *Cyttaria berterii* for a general description of the *Cyttarias*. Parasitic on *Nothofagus*. Distributed in Tasmania, New Zealand, and Australia.

Nothofagus cunninghamii: Tasmania.

N. fusca: New Zealand.

N. menziesii: New Zealand.

N. moorei: New South Wales (Victoria).

Cyttaria harioti Fisch. (xxx) beech morel

See also *Cyttaria berterii* for a general description of this fungus. Parasitic on *Nothofagus*. Distributed in Fuegia, Chile, and Argentina.

Nothofagus antarctica: Chile, Argentina.

N. betuloides: Chile, Argentina.

N. dombeyi: Chile.

N. nitida: Chile.

N. pumilio: Chile, Argentina.

Cyttaria hookeri Berk. (xxx) beech morel

See *Cyttaria berterii* for a general description of the *Cyttarias*. Parasitic on *Nothofagus*. Distributed in Fuegia, Patagonia, and Hermite Island.

Nothofagus antarctica: Argentina, Chile.

N. betuloides: Argentina, Chile.

N. dombeyi: Argentina.

N. pumilio: Argentina, Chile.

Cyttaria reichei P. Henn. (xxx) beech morel

See *Cyttaria berterii* for a general account of the *Cyttarias*. Parasitic on *Nothofagus* branches in Chile.

Nothofagus obliqua: Chile.

Cyttaria septentrionalis Herb. (xxx) beech morel

See *Cyttaria berterii* for a general description of the *Cyttarias*. Parasitic on *Nothofagus* in Australia.

Nothofagus moorei: Australia (Queensland, New South Wales).

Daedalea quercina L. (xx)**oak brown rot**

Forms a large, corky, pale wood-colored conk, thick bracket shaped, with irregularly spaced flat gills beneath. It usually occurs on stumps and large fallen timber, but occasionally grows out from dead branch wounds on living trees. Oaks are its favorite hosts, but it grows uncommonly on a number of other broad-leaved species. It causes a reddish brown, cubical dry rot of heart and sapwood. Distributed in North America from Canada southward to the highlands of Mexico; generally in Europe where oak grows; also in South Africa, and across Siberia to Vladivostok, India, and Japan.

Quercus sp.: Great Britain, Japan, Norway, Portugal, Russia (Voronezh).

Q. mongolica: Siberia (Amur region).

Q. suber: Russia (Caucasus).

Q. suber var. *occidentalis*: Russia (Caucasus).

Daedalea unicolor Fr. (xx)**trunk rot**

Forms a conk, white, annual, mostly resupinate with slight overlapping shelving; small, villous on top; pores white, very short, labyrinthiform, at length torn into teeth. Common on stumps, trunks, and timbers, causing a white rot. Not uncommon on living broad-leaved trees at large branch and trunk wounds. Sometimes forms depressed cankers by killing the cambium and underlying sapwood. Distributed throughout the North Temperate Zone.

Acer sp.: Norway, Great Britain.

A. platanoides: Hungary.

A. pseudoplatanus: Denmark.

Aesculus hippocastanum: Denmark, Hungary.

Alnus sp.: Norway.

Betula sp.: Great Britain, Hungary, Norway.

B. davurica: Siberia (Ussuri).

B. pendula: Siberia, Poland.

B. pubescens: Norway, Siberia (Omsk).

Carpinus sp.: Great Britain.

C. cordata: Siberia (Ussuri).

Castanea sp.: Great Britain.

C. sativa: Japan.

Fagus sylvatica: Denmark, Germany, Hungary, Norway.

Morus alba: Hungary.

Picea abies: Norway, Sweden.

Populus sp.: Norway.

P. tremula: Siberia (Ussuri).

Quercus sp.: Great Britain.

Q. mongolica: Siberia (Amur region and Ussuri).

Robinia sp.: Great Britain.

Salix sp.: Great Britain.

S. caprea: Denmark.

Sorbus aucuparia: Denmark.

Styrax obassia: Japan.

Daldinia concentrica Ces. & de N. (xx) **mottled rot**

Forms smooth, hemispherical black growths, 1 to 2.5 cm. in diameter, on bark or wood. When mature, these growths have the consistency and appearance of charcoal, and are concentrically zoned within. The decay is a white rot, mottled and streaked with black mycelial masses. The fungus is weakly parasitic in dying tissues. Distributed practically over the whole world.

Betula sp.: Norway.

Hevea brasiliensis: Brazil, Ceylon, India, Malaya.

Dasturella boswelliae Patel, Payak & Kulkarni (xxx) **rust**

Forms rust pustules, brownish-black, minute; followed by subepidermal telial sori up to 290μ broad and 130μ high on leaves of *Boswellia*. Known only in India.

Boswellia serrata: India.

Dasturella divina (Syd.) Mund. & Kheswalla (xxx) **rust**

Forms rust pustules, subepidermal, erumpent, pulverulent, bright brown, followed by dark cinnamon-brown pustules in the form of cellular sheets 60 to $114\mu \times 8$ to 17μ . On leaves of *Dendrocalamus* and *Randia*. Known in India, Viet Nam, Pakistan, and Japan.

Dendrocalamus strictus: India, Pakistan.

Randia brandisii: India.

R. candolleana: India.

R. dumetorum: India.

Dasturella greviae (Pat. & Har.) Thirum. (xxx) **rust**

Forms golden brown rust pustules on leaves of *Grewia*, followed by pulverulent chestnut-brown pustules on the same leaves. Distributed in Transvaal and Senegal.

Grewia ferruginea: French West Africa (Senegal).

G. monticola: Union of South Africa (Transvaal).

Dasyscypha abieticola Henn. & Shirai (xx) **canker**

Associated with slightly swollen or depressed cankers of stems and branches of pines and firs in Japan. The fungus fruiting bodies are tiny shallow bowls with small stems, yellow within and fleshy in texture; borne on the surface of infected bark. Reported only in Japan.

Abies homolepis: Japan.

Picea jezoensis var. *hondoensis*: Japan.

Dasyscypha abietis (Karst.) Sacc. (xx)

On branches of *Picea*. Reported in New York and Vermont; and in Europe in Finland and Norway.

Picea abies: Finland.

Dasyscypha calyciformis (Willd.) Rehm (xx) **canker**

Associated with canker of conifers. It is a small cup fungus that is a wound pathogen, but usually is saprophytic. In high latitudes and elevations in northern and central Europe, it becomes parasitic enough

to cause some loss in conifers, and is especially mentioned as injurious to *Abies balsamea*. Distributed in North America, Europe, Siberia, Japan, and New Zealand.

Abies alba: Austria, Germany, Norway, Switzerland.

A. cephalonica: Norway.

A. firma: Japan.

A. nordmanniana: Norway.

A. sibirica: Norway, Siberia, Switzerland.

Larix decidua: Switzerland.

Picea abies: Czechoslovakia, Denmark, Great Britain, Switzerland.

Pinus banksiana: Belgium, New Zealand.

P. monticola: Scotland.

P. mugo var. *pumilio*: Austria.

P. nigra: Belgium.

P. nigra var. *poiretiana*: Belgium.

P. ponderosa: New Zealand.

P. radiata: New Zealand.

P. sylvestris: Belgium, Estonia, Norway.

Dasyscypha pini (Brunch.) Hahn & Ayers (xx) **pine canker**

Associated with dying of young trees of *Pinus* and dying of tops of older trees in Norway to Finland. Thirty to sixty percent of the trees in a stand may be diseased and some die outright in Europe. Distributed at high latitudes and elevations in Michigan to Montana, Washington, and British Columbia, and in northern Scandinavia and Finland.

Pinus nigra: Norway.

P. sylvestris: Finland, Norway, Sweden.

Dasyscypha subtilissima (Cke.) Sacc. (xx) **pine canker**

Forms shallow cupulate fruiting bodies on stem cankers of *Pinus*. In wet weather they are expanded to 1 to 2 mm. wide, the inner disc is orange yellow, the outside is white and villous. Distributed in Michigan and New York; and in Scotland, Norway, Sweden, Finland, and France in Europe.

Abies alba: Great Britain.

Larix decidua: Great Britain.

Picea abies: Norway.

Pinus densiflora: Scotland.

P. mugo: Norway.

P. mugo var. *rostrata*: Norway.

P. nigra: Norway.

P. sylvestris: Norway, Scotland.

P. thunbergii: Scotland.

Dasyscypha gregaria (Kunze) P. Henn. (xxx) **rust**

Forms rust pustules on leaves of *Xylopi*a. The early-season stage is yellow, tufted, and more or less crowded, mostly on the lower leaf surface. Later, a pulverulent chestnut-brown stage is produced, which carries the fungus over winter. Distributed from Guatemala to Panama, Venezuela, and Peru.

*Xylopi*a sp.: Guatemala, Venezuela.

X. frutescens: Guatemala.

X. grandiflora: Peru.

Diaporthe aristata (Fr.) Karst. (xx) **canker**

Forms subepidermal pimplelike erumpent pustules on dead bark. Associated with cankers of young and old *Betula* trees in Europe. Distributed in Iceland, Denmark, Norway, and Sweden.

Betula sp.: Denmark, Norway, Sweden.

Diaporthe oncostoma (Duby) Fckl. (xx) **dieback**

Forms tiny tufts of fungus filaments breaking through the epidermis of diseased bark on twigs and smaller branches. Associated with dieback of *Robinia* and *Toona*. Distributed from New York and Illinois to Georgia and West Virginia; also in Europe.

Toona sinensis: France.

Diaporthe taleola (Fr.) Sacc. (xx) **oak canker**

Associated with canker of small stems and branches of *Quercus*. Causes considerable damage to young trees by girdling stems and to old trees by causing shedding of twigs. Distributed in Europe.

Quercus sp.: Belgium, France, Germany, Italy, Netherlands, Sweden.

Q. petraea: Austria, Germany, Switzerland.

Q. pubescens: Austria, Germany, Switzerland.

Q. robur: Austria, Denmark, Germany, Switzerland.

Diatractium cordiae (F. L. Stevens) Syd. (xx) **leaf spot**

Occurs on discolored spots on leaves of *Cordia*. These spots may remain greenish after the rest of the leaf is yellow. Distributed in Barbados, Grenada, Puerto Rico, Colombia, and Venezuela.

Cordia sp.: Grenada, Venezuela.

C. glabra: Barbados, Colombia, Puerto Rico, Venezuela.

Dicheirinia archeri Cumm. (xxx) **rust**

Forms rust pustules on leaves of *Lonchocarpus* in Surinam and Peru.

Lonchocarpus nicou: Peru, Surinam.

L. urucu: Peru.

L. utilis: Peru.

Dicheirinia binata (Berk.) Arth. (xxx) **rust**

Forms powdery cinnamon-brown rust pustules on leaves of *Erythrina* followed by a chestnut-brown stage. Distributed in the West Indies, Guatemala, Panama, Nicaragua, Colombia, and Venezuela.

Erythrina sp.: Nicaragua.

E. crista-galli: Puerto Rico.

E. glauca: Colombia, Cuba, Grenada, Guatemala, Puerto Rico, Venezuela.

E. mitis: Trinidad.

Dicheirinia guianensis Cumm. (xxx) **rust**

Forms rust pustules on leaves of *Lonchocarpus* in British Guiana.

Lonchocarpus nicou: British Guiana.

Didymascella tetraspora (Phill. & Keith) Maire (xxx) **juniper leaf blight**

Forms dark, pustular spots bursting through the epidermis of leaves of *Juniperus*. The leaves die and young seedlings are killed, while older trees are partially defoliated. Lower branches near the ground are most heavily attacked. Distributed in Scotland, Corsica, and Algeria.

Juniperus sp.: Europe, Scotland.

J. oxycedrus: Algeria, Corsica.

Didymascella thujina (Durand) Maire (xxx) **leaf blight**

Similar to *Didymascella tetraspora* but attacks leaves of *Thuja* and *Chamaecyparis*. It is native in North America and is widely distributed in Europe and New Zealand.

Chamaecyparis lawsoniana: Great Britain (Leonardslee).

Didymella araucariae Voglino (xx) **wilt**

Associated with wilt and shedding of leaves of *Araucaria* in Italy.

Araucaria araucana: Italy.

Didymella cocoina Sechet (xx) **leaf spot**

Occurs on large leaf spots on *Cocos*, gray with brown margins, which are less than 1 mm. wide. Known only in Madagascar.

Cocos nucifera: Madagascar.

Didymella heveana Saccas (xx) **leaf spot**

Occurs on *Hevea* leaf spots, brownish to reddish gray, 1 to 3 cm. in diameter, bounded by narrow marginal zones. Known in French Equatorial Africa.

Hevea brasiliensis: French Equatorial Africa.

Didymella mangiferae Batista (xxxx) **leaf spot**

Associated with leaf spots on *Mangifera*, finally resulting in defoliation. Known in Brazil.

Mangifera indica: Brazil.

Dielsiella pollaccii (Elisei) Cicc. & Castell. (xx) **black spot**

Forms black crusts easily detachable, each on a central subepidermal foot, on leaves and stems of *Catha* in Abyssinia.

Catha edulis: Abyssinia.

Dimeriella cordiae (P. Henn.) Th. (xxx) **black mildew**

Forms a black fungus web over the upper surface of leaves of *Cordia*. Distributed in Brazil, Colombia, Venezuela, Puerto Rico, and Dominican Republic.

Cordia sp.: Venezuela.

C. corymbosa: Colombia.

C. ferruginea: Colombia.

C. lanceolata: Colombia.

C. sulcata: Puerto Rico.

Dimeriellopsis heterotrichi Toro (xxx) black mildew

Forms a black, woolly fungus web on the upper side of leaves of *Heterotrichum*. Known in Venezuela.

Heterotrichum macrodon: Venezuela.

Dimerina graffi Syd. (xxx) black mildew

Forms black mildew of leaves of *Gmelina* in the Philippines.

Gmelina philippensis: Philippines.

Dimerina jacquiniae Garman (xxx) black mildew

Forms small groups of black spherical perithecia with scant mycelium. On leaves of *Jacquinia*. Known only in Puerto Rico.

Jacquinia barbasco: Puerto Rico (Mona Island).

Dimerium autrani (Henn.) Sacc. & Trott. (xxx) black mildew

Forms black mycelial crusts on the upper surface of leaves of *Canthium*. Known in Eritrea.

Canthium schimperianum: Eritrea.

Dimerium elegans Syd. (xxx) black mildew

Forms black mildew on leaves. Known in Japan.

Lithocarpus cuspidata: Japan.

Dimerium melioloides (Berk. & Curt.) Garman (xxx) black mildew

Forms dense groups of black mildew perithecia on leaves of *Clusia*. Known in Puerto Rico, Cuba, and Brazil.

Clusia rosea: Puerto Rico.

Dimerium stevensii Garman (xxx) black mildew

Forms shiny black fungus perithecia on leaves of *Cordia*. Known in Puerto Rico.

Cordia corymbosa: Puerto Rico.

Diorchidium piptadeniae Diet. (xxx) rust

Forms pale brown rust pustules on leaves of *Piptadenia* followed by a brown-spored stage. Known in Brazil.

Piptadenia latifolia: Brazil.

P. laxa: Brazil.

Diplodia cerci-chinensis Togashi & Tsukamoto (xxx) twig blight

Associated with twig blight of *Cercis* in Japan.

Cercis chinensis: Japan.

Diplodia epicocos Cke. (xx) palm leaf spot

Occurs on leaf spots of palms in Jamaica, India, and Tanganyika.

Cocos nucifera: India, Jamaica, Tanganyika.

Washingtonia filifera: Tanganyika.

Diplodia gongrogena Temme (xx) **poplar gall**

Occurs on woody tumors on branches of *Populus* in Germany and Austria.

Populus alba: Austria.

P. nigra: Austria.

P. tremula: Austria, Germany.

Diplodia hungarica Bub. (xx) **ash leaf spot**

Occurs on definite, coriaceous leaf spots of *Fraxinus* with brown margins. Known in Hungary.

Fraxinus ornus: Hungary.

Diplodia melaena Lév. (x) **elm dieback**

Associated with dieback of elm twigs. Distributed in France, Italy, Germany, and Denmark.

Ulmus sp.: Germany.

U. glabra: Denmark.

Diplodia morina Syd. (xx) **mulberry root disease**

Causes death of *Morus* roots. Inoculations through the epidermis of roots succeeded. Branches are also reported killed. Known in India.

Morus alba: India.

Diplodia pinea (Desm.) Kickx (xx) **canker, twig blight**

Forms black fungus pustules on dead bark of cankers. Occurs generally in both North and South Temperate Zones as a saprophyte in felled timber. It causes blue discoloration of newly cut lumber and of sapwood in wounded living coniferous trees. It is able to attack unwounded trees occasionally, but usually occurs only on trees that have some wound exposing inner woody tissues or suffering some setback in vigor. Exotic trees are especially liable to serious attack. It is present wherever extensive plantations of exotic conifers have been made, notably in New Zealand and South Africa.

Abies sp.: Union of South Africa.

A. pinsapo: Chile.

Araucaria cunninghamii: Australia (Queensland).

Cupressus sempervirens: Australia (Queensland).

Pinus canariensis: Union of South Africa, Portugal, Argentina.

P. halepensis: Italy, Portugal, Argentina, Brazil, Union of South Africa.

P. khasya: Australia (Queensland).

P. montezumae: Nyasaland.

P. mugo: Africa (Cape Colony).

P. mugo var. *mughus*: Union of South Africa.

P. nigra: New Zealand, Romania.

P. nigra var. *poiretiana*: New Zealand, Portugal.

P. patula: Australia.

P. pinaster: Argentina, Australia, Mozambique, Portugal, Union of South Africa.

P. pinea: Italy, Portugal.

P. roxburghii: Australia.

P. sylvestris: Argentina, Austria, England, France, Italy, Romania.

P. thunbergii: Argentina.

Thuja orientalis: Portugal.

Diplodia recifensis Batista (xx)

mango wilt

Forms globose, carbonaceous perithecia with brown to violaceous mycelium on *Mangifera*. The fungus is a weak pathogen, entering the burrows made in living trees by the insect *Xyleborus affinis* Eichh. The fungus spreads into surrounding tissues, finally reaching the xylem vessels and cuts off the water supply to the leaves. Wilt ensues and the tree may be killed. In Pernambuco, Brazil, about 25 percent of the mango trees of the city are so severely affected as to be liable to die. The insect depends on the fungus for food. There are also bacterial and nematode symbionts. The disease, called recife sickness, is known only in Brazil.

Mangifera indica: Brazil.

Discella carbonacea (Fr.) Berk. & Br. (xx)

willow canker

Occurs on stem cankers forming erumpent, black fungus pustules breaking through the epidermis of dead bark. Inoculations in wounds succeeded. Distributed in the United States and Europe.

Salix alba var. *vitellina*: Netherlands.

S. viminalis: Netherlands.

Discula betulina (West.) v. Arx (xx)

anthracnose

Conidial pustules are associated with anthracnose leaf spots of *Betula*; brown and up to 6 mm. in diameter. Distributed in Europe and Siberia.

Betula pendula: Great Britain, Siberia.

B. pubescens: Russia.

Discula quercina (West.) v. Arx (xxx)

leaf spot

Causes leaf spots of broad-leaved trees and damping-off of seedlings of species of temperate climates. Distributed in the United States and Europe.

Fagus sylvatica: Austria, Belgium, Denmark, France, Germany, Great Britain, Italy.

Quercus petraea: Denmark.

Q. robur: Great Britain, Denmark, Netherlands.

Tilia sp.: Czechoslovakia, Great Britain.

T. cordata: Denmark, Germany, Russia.

T. ×europaea: Denmark.

Ulmus pumila: Romania.

Dothichiza populea Sacc. & Br. (xx)

poplar canker

Infections first appear as brown, rounded to elliptical spots in the bark of young *Populus* stems, frequently with dead leaves or twigs at the center. The bark soon dies to the wood. Later the dead bark bursts open by pressure of callus formed beneath the edges of dead tissue. Growth of the canker stops after the new wood layer forms, and does not resume activity until the next spring. Cankers often

girdle and kill small branches. Water sprouts commonly appear below the girdle, but are soon girdled in turn. In the spring, fungus pustules burst through the epidermis and exude tendrils of tiny spores to start new infections. Their germ tubes can enter healthy tissue, but injuries greatly favor rapid spread of the disease.

Poplar canker was known in Europe as early as 1884 and has spread well over that continent. Activity in breeding and propagating poplars has accelerated its progress over western Europe and in Argentina, Canada, and the United States. It is limited to young planted stands.

Populus sp.: Great Britain.

P. alba: Germany.

P. angulata: France, Netherlands.

P. balsamifera: Italy.

P. × berolinensis: Netherlands.

P. × canadensis: France, Germany, Italy, Belgium.

P. × canadensis var. *charkowiensis*: Netherlands.

P. × canadensis f. *erecta*: Netherlands.

P. × canadensis var. *eugenei*: Germany, Italy, Netherlands.

P. × canadensis f. *gelrica*: Netherlands.

P. × canadensis var. *lloydii*: Netherlands.

P. × canadensis var. *marilandica*: Netherlands.

P. × canadensis var. *regenerata*: Germany, Netherlands.

P. × canadensis var. *serotina*: Belgium, Great Britain, Netherlands.

P. × canescens: Germany.

P. koreana: Netherlands.

P. laurifolia: Netherlands.

P. maximowiczii: Netherlands.

P. nigra: Germany, Italy, Netherlands.

P. nigra var. *elegans*: Netherlands.

P. nigra var. *italica*: Argentina, Belgium, Germany, Italy, Netherlands.

P. × petrowskyana: Germany, Italy.

P. × rasumowskiana: Netherlands.

P. × robusta: Belgium, Germany, Great Britain, Netherlands.

P. simonii: Germany, Italy.

P. simonii f. *fastigiata*: Netherlands.

P. suaveolens: Netherlands.

P. trichocarpa: Germany.

P. tristis: Netherlands.

Dothidella ulei P. Henn. (xxx)

leaf blight

The first symptom of the South American leaf blight of *Hevea* is the blackening, withering, and shedding of young leaves. Less severely attacked leaves continue to grow, and the larger spots become papery and torn. The mature foliage assumes a ragged appearance. The lower surface of the spots is velvety with conidia. Later, the upper surface develops black fungus perithecia often arranged in small circles. Swollen lesions occur on young twigs. Continued attacks result in death of the entire tree.

The growing of rubber is seriously threatened by the ravages of this disease. It is distributed from Mexico southward through Central America and in South America to Brazil, Peru, and Bolivia.

Hevea brasiliensis: Bolivia, Brazil, British Guiana, Colombia, Costa Rica, French Guiana, Guatemala, Mexico, Nicaragua, Panama, Peru, Surinam, Trinidad, Venezuela.

H. collina: Brazil.

H. confusa: British Guiana.

H. guianensis: Brazil, Dutch Guiana, Manaos, Surinam.

H. guianensis var. *lutea*: Peru.

H. lutea: Peru.

H. paludosa: Brazil.

H. randiana: Brazil.

H. spruceana: Brazil, British Guiana, Colombia, Costa Rica, Panama, Surinam, Trinidad.

***Dothidina peribebuyensis* (Speg.) Chardon (xxx) tar spot**

Forms small dark brown fruiting bodies on brown spots on leaves of *Miconia* and related trees. Known in Paraguay, Brazil, Colombia, and Puerto Rico.

Miconia sp.: Colombia.

***Dothiorella caseariae* Speg. (xxx) black spot**

Forms black, slightly carbonaceous fungus mats 400 to 600 microns wide on the upper side of living leaves of *Casearia*. Known only in Argentina.

Casearia sylvestris: Argentina.

***Dothiorella holstii* (P. Henn.) v. Arx (xxx) anthracnose**

Conidial pustules form on anthracnose spots on leaves of *Tabernaemontana* in Ceylon and Tanganyika.

Tabernaemontana holstii: Tanganyika (Usambara).

***Dothiorella phomiformis* (Sacc.) Petr. & Syd. (xxx) oak anthracnose**

Conidial pustules form on anthracnose spots, ochraceous to brown with pale centers, on *Quercus* leaves. Known in Japan.

Quercus glandulifera: Japan.

***Drepanoconis larviformis* Speg. (xx) powdery galls**

Forms small galls, covered with a white powdery coating, growing on shoots, leaves, and fruits. The parasite attacks *Nectandra* and *Cryptocarya* in Brazil.

Cryptocarya mandioccana: Brazil.

Nectandra nitidula: Brazil.

N. puberula: Brazil.

N. tweediei: Brazil.

***Echidnodella cedralensis* Toro (xxx) black mildew**

Forms colonies on distinct brownish spots 4 to 8 mm. across, with many black perithecia in each group. On the upper surface of leaves of *Rapanea* in Venezuela.

Rapanea sp.: Venezuela.

Echinodontium tinctorium Ell. & Ev. (xx) brown stringy rot

The conk is large, woody, blackish, with the upper surface fissured. Beneath, it has spines instead of pores. It characteristically enters through branch stubs, and causes a brown stringy rot of heartwood of *Abies*, *Tsuga*, *Picea*, and *Pseudotsuga*. In North America it causes heavy losses in mature stands. Distributed in North America and Japan.

Tsuga diversifolia: Japan.

Elsinoë antidesmae Rac. (xxx) leaf scab

Causes scab of leaves in Java.

Antidesma heterophyllum: Java.

Elsinoë bertholletiae Bitanc. (xxx) leaf scab

Causes leaf scab of *Bertholletia* in Brazil.

Bertholletia excelsa: Brazil.

Elsinoë bitancourtiana Thirum. (xxx) leaf scab

Causes leaf scab of *Scutia* in India.

Scutia myrtina: India.

Elsinoë centrolobii Bitanc. & Jenkins (xxx) leaf scab

Associated with scab of leaves of *Centrolobium* in Brazil.

Centrolobium robustum: Brazil.

Elsinoë cinchonae Jenkins (xxx) scab

Forms lesions on leaves, young stems, and fruits of *Cinchona*. The lesions are raised above the surface of the host tissues, forming scab-like spots with numerous dark fungus pustules. Distributed in Peru and Colombia.

Cinchona delessertiana: Peru.

C. officinalis: Colombia.

C. pubescens: Colombia, Peru.

Elsinoë costai Bitanc. & Jenkins (xxx) leaf scab

Forms distinct wartlike galls on the lower surface of leaves in Brazil.

Cordia sellowiana: Brazil.

Elsinoë diospyri Bitanc. & Jenkins (xxx) leaf scab

Occurs on scattered leaf spots 0.5 to 2.5 mm. across, with white to gray centers and dark chestnut to black edges, on *Diospyros* in Brazil.

Diospyros kaki: Brazil.

Elsinoë erythrinae Bitanc. & Jenkins (xxx) leaf scab

Forms thickened scabs on leaves of *Erythrina* in Brazil.

Erythrina crista-galli: Brazil.

E. speciosa: Brazil.

Elsinoë lepagei Bitanc. & Jenkins (xxx) leaf scab

Causes small, scabby, wartlike outgrowths on leaves of *Achras*.

Achras zapota: Brazil.

Elsinoë mattirolianum Arn. & Bitanc. (xxx) **leaf scab**

Forms small buff scabs on leaves of *Arbutus* in Italy, Germany, and Portugal.

Arbutus unedo: Germany, Italy, Portugal.

Elsinoë mayaguensis Bitanc. & Jenkins (xxx) **leaf scab**

Forms numerous, scattered leaf spots 1 to 8 mm. across, vinaceous-buff, on *Cordia*. Known in Puerto Rico and Brazil.

Cordia sp.: Puerto Rico.

C. sellowiana: Brazil.

Elsinoë pitangae Bitanc. & Jenkins (xxx) **leaf scab**

Causes scab disease of *Eugenia* leaves in Brazil and Argentina.

Eugenia pitanga: Brazil.

Elsinoë puertoricensis Jenkins & Bitanc. (xxx) **scab**

Produces a conspicuous scab on leaves, stems, and fruits of *Randia*. Distributed in Martinique, Puerto Rico, and Haiti.

Randia aculeata: Martinique, Puerto Rico.

Elsinoë talisiae Bitanc. & Jenkins (xxx) **scab**

Causes scab of leaves and fruits of *Eugenia* and *Talisia* in Brazil.

Eugenia luschnathiana: Brazil.

Talisia esculenta: Brazil.

Elsinoë tiliae Creelman (xxx) **linden scab**

Causes scab disease of *Tilia* leaves, petioles, larger veins, and young twigs. On the leaves the pathogen attacks the larger veins especially. The spots are pale gray with black borders. Later the gray centers fall out, leaving a shothole appearance and the leaves become ragged. On woody parts the lesions are elongate with raised black borders. The scabs fall out so that the affected parts have a pitted appearance. Distributed in Nova Scotia, Virginia, and Argentina.

Tillia ×europaea: Argentina.

Endophyllum griffitsiae Rac. (xxx) **rust**

Forms yellow rust on leaves of *Randia* and *Pavetta*. Known in India, Java, and China.

Randia longiflora: Java.

Endophyllum superficiale (Karst. & Roum.) F. L. Stevens & Men-diola (xxx) **rust**

Forms brownish-yellow rust pustules on leaves of *Sterculea* and *Clerodendrum*. Known in Viet Nam and the Philippines.

Clerodendrum calamitosum: Philippines.

C. fragrans: Philippines.

C. intermedium: Philippines.

C. quadriloculare: Philippines.

Endothia fluens (Sow.) Shear & N. E. Stevens (x) **canker**

Associated with canker of *Castanea* and *Quercus* shoots, and later dieback. Forms fungus pustules with pulverulent orange-yellow contents. The affected trees grow in very poor soil and the fungus, which is generally a saprophyte, becomes weakly pathogenic. Distributed in North America from southern Pennsylvania and Ohio to South Carolina and northern Mississippi; also in Europe, Asia, and Japan.

Castanea sp.: Italy.

Endothia gyrosa (Schw.) Fr. (xx) **hardwoods canker**

A slow-growing wound parasite on exposed roots and on branches of broad-leaved trees. Sparsely distributed from Connecticut to Michigan, southward to Florida and Texas; also in Kansas and California. Reported in Germany, Italy, western Europe, Ceylon, New Zealand, and the Philippines.

Castanea crenata: Spain.

C. dentata: Portugal.

C. sativa: Italy.

Eucalyptus diversicolor: Portugal.

Quercus fruticosa: Portugal.

Q. lusitanica: Portugal.

Q. pyrenaica: Portugal.

Q. suber: Portugal.

Endothia parasitica (Murr.) P. J. & H. W. And. (xxx) **bark blight**

Causes lesions of the bark on all parts of chestnut and oak trees above ground. Infections girdle the tree and kill distal parts. Bark blight has practically exterminated the American chestnut as a timber tree. Evidently it was carried to Europe in lumber during World War I, and has spread into chestnut growing regions of Italy, France, Yugoslavia, Switzerland, Spain, and the Caucasus. It was native in China and Japan and possibly India. The European chestnut is going through the same course with this disease as has our American species.

Acer palmatum: Japan.

Castanea sp.: Beligum.

C. crenata: Italy, Japan, Spain.

C. dentata: Italy.

C. mollissima: China.

C. sativa: Czechoslovakia, France, India, Italy, Spain, Switzerland, Yugoslavia.

Fagus sylvatica: Switzerland.

Quercus dentata: Japan.

Q. ilex: Italy, Switzerland.

Q. petraea: Italy, Switzerland.

Q. pubescens: Italy, Switzerland.

Q. robur: Italy, Yugoslavia.

Q. suber: Russia (Caucasus).

Q. suber var. *occidentalis*: Russia (Caucasus).

Endoxylina astroidea Fr. (xx) **pith rot**

Causes rot of pith in trunks of *Fraxinus* that comes to the surface at broken branch stubs. Recorded first in U.S.S.R. in 1940, but had evidently been there 30 or 35 years as it was widely spread. Inoculations succeeded in wounds. Known in Sweden and Russia.

Fraxinus excelsior: Russia.

Epicoccum granulatum Penz. (xxx) **wood decay**

Associated with delignification of wood in living trees of *Aquilaria*, and exudation of an aromatic resin apparently formed in the decomposition of the wood. Artificially infected wood has delignified like that inside the trees. Known in India.

Aquilaria agallocha: India.

Epithochium ilicinum Goid. & Camici (xx) **oak canker**

Causes small cankers on branches of *Quercus* up to 8 cm. in diameter. They extend into the wood toward the pith. The phloem, cambium, and discolored xylem were completely necrotic. Inoculations in wounds resulted in cankers after 10 months and the original fungus was re-isolated. Known in Italy.

Quercus ilex: Italy.

Erikssonia protii Cash (xx) **leaf spot**

Occurs on buff spots 2 to 15 mm. across on leaves of *Trattinickia*. Stromata on lower leaf surface, black, rough, stellate, with carbonaceous base slightly sunken in the epidermis and readily breaking off. Known in Panama.

Trattinickia aspera: Panama.

Erysiphe acaciae Blumer (xxx) **powdery mildew**

Forms white powdery mildew on leaves of *Acacia*. Known only in India.

Acacia catechu: India.

Erysiphe cichoracearum DC. (xxx) **powdery mildew**

Forms white powdery mildew on leaves of many crop plants and some trees. *Mallotus* and *Mangifera* are among the trees attacked. Distributed especially in the North Temperate Zone; India, Formosa, and in South Africa.

Mallotus japonicus: Formosa.

Mangifera indica: India, Union of South Africa.

Erysiphe japonica (Ito & Hara) Wei (xxx) **powdery mildew**

Forms white to gray powdery mildew on leaves of *Quercus*. Distributed in China and Japan.

Quercus aliena: China.

Q. baronii: China.

Q. mongolica var. *grosseserrata*: Japan.

Erysiphe polygoni DC. (xxx) powdery mildew

A very common and nearly cosmopolitan, gray to brownish, powdery mildew on hundreds of different plants, including numerous broad-leaved trees. Distributed in China, India, Japan, Congo, and Madagascar. Common in North America.

Castanopsis concolor: China.

C. delavayi: China.

Mangifera indica: Madagascar.

Quercus glauca: Japan.

Q. schottkyana: China.

Robinia pseudoacacia: Japan.

Euryachora rhytismoides (J. Müll.) Ferd. & O. Rostr. (xx) tar spot

Forms black spots on leaves of young *Acer* trees. Distributed in Germany and Denmark.

Acer pseudoplatanus: Denmark.

Eutypa erumpens Mass. (xx) tar spot

Forms black, raised tar spots on bark of various broad-leaved trees. Enters through wounds and causes considerable damage. Distributed in the British West Indies and the Gold Coast.

Myristica fragrans: West Indies.

Theobroma cacao: West Indies.

Excipulina pinea (Karst.) Hoehn. (xx) dieback

Forms conidial pustules associated with death of terminal buds of pines with later dying back of twigs and young shoots on older trees; younger ones are not commonly attacked. Distributed in Europe.

Pinus contorta: Norway.

P. mugo: Norway.

P. nigra: Norway.

P. sylvestris: Norway.

Exobasidium cinnamomi Petch (xxx) cinnamon excrescences

Forms rough, pale brown excrescences up to 8 cm. long on branches of *Cinnamomum* in Ceylon.

Cinnamomum cassia: Ceylon (Peradeniya).

C. zeylanicum: Ceylon (Peradeniya).

Exobasidium indicum H. & P. Syd. & Butl. (xxx) leaf gall

Causes sordid white galls on leaves of *Symplocos* in India and Ceylon.

Symplocos theaeifolia: India.

Exobasidium lauri Geyl. (xxx) stem gall

Causes long sulcate outgrowths to form on stems of *Laurus*. Distributed in the Canary Islands and Sardinia.

Laurus canariensis: Spain (Canary Islands).

L. nobilis: Italy (Sardinia), Spain (Canary Islands).

Exobasidium unedonis Maire (xxx)

Deforms the branches and destroys the leaves of *Arbutus*. It fruits on the lower surfaces of leaves and branches. Known in Algeria.
Arbutus unedo: Algeria.

Exosporium deflectens Karst. (xxx)**juniper needle cast**

Conidial pustules are associated with needle cast of *Juniperus*. Known in Wisconsin, Finland, and Romania.
Juniperus communis: Romania.

Exosporium juniperinum Jacz. (xxx)**juniper needle cast**

Associated with needle cast of *Juniperus*. Known in Russia.
Juniperus sp.: Russia.

Exosporium palmivorum Sacc. (xx)**palm leaf spot**

Occurs on leaf spots of palms, 1 to 3 cm. in diameter, brown with olive-brown, pulvinate pustules. Distributed in North America, Europe, India, and Andaman Islands.
Cocos nucifera: Andaman Islands.
Phoenix canariensis: France.

Exosporium ulmi Eriks. (xx)**elm dieback**

Associated with twig dieback of young *Ulmus* in Sweden.
Ulmus sp.: Sweden.

Favolus albus Lloyd (xx)

A wound parasite of *Ficus* in the Philippines.
Ficus sp.: Philippines.

Fistulina hepatica Fr. (xx)**brown heart rot**

Causes "brown oak" in infected heartwood of *Quercus* and similar coloration in other trees, as *Eucalyptus*, *Castanea*, etc. The affected oak wood is more valuable than sound wood until it reaches a late stage of rot when disintegration weakens it. The fungus forms soft, fleshy conks resembling an animal's tongue with the rough side down. Each pore is a separate tube, the whole having a reddish color. Distributed in North America, Europe, East Indies, and Australia.

Carpinus sp.: Great Britain.

Castanea sp.: Great Britain.

C. sativa: Russia (Caucasus), Great Britain, Portugal.

Eucalyptus sp.: Australia, Portugal.

E. marginata: Australia.

Fagus sylvatica: France, Germany, Great Britain, Norway.

Fraxinus sp.: Great Britain.

Platanus sp.: Portugal.

Quercus sp.: France, Germany, Great Britain, Norway, Portugal.

Q. petraea: Great Britain.

Q. robur: Great Britain.

Salix sp.: Great Britain.

Ulmus sp.: Great Britain.

Fomes annosus (Fr.) Karst. (xx)**root rot**

Forms small conks on the lower side of partially upturned roots, or under duff at the bases of diseased trees. These are flattened discs or irregular brackets up to 12 cm. across, grayish brown, with distinct ridges where new growth is made each year. The lower surface is white to yellowish, with tiny rounded pores and a distinctly ridged sterile margin. This fungus causes a white, stringy, root and butt rot of conifers and occasionally of broad-leaved trees. Trees die as a result of the cambium above the root collar being killed by the fungus. It is distributed throughout the North Temperate Hemisphere and is reported in Australia.

Abies alba: Belgium, Denmark, Germany, Great Britain, Ireland, Italy, Norway, Poland, Turkey.

A. georgei: China.

A. mariesii: Japan.

A. pindrow: India.

A. pinsapo: Great Britain.

A. sachalinensis: Japan.

A. sibirica: Siberia.

A. veitchii: Japan.

Aesculus indica: Pakistan.

Alnus glutinosa: Norway, Great Britain.

A. incana: Norway.

Betula sp.: Denmark, Germany, Great Britain, Norway, Poland, Sweden.

B. pendula: Denmark, Great Britain.

B. pubescens: Denmark.

Cedrus deodara: Great Britain, India.

Crataegus monogyna: Denmark, Germany.

C. oxyacantha: Denmark, Great Britain.

Cryptomeria japonica: Great Britain.

Fagus crenata: Japan.

F. sylvatica: Great Britain, Germany, Denmark.

Fraxinus excelsior: Denmark.

Larix decidua: Denmark, Germany, Great Britain, Ireland, Norway, Sweden.

L. ×eurolepis: Great Britain.

L. gmelinii: Russia, Siberia.

L. leptolepis: Belgium, Denmark, Great Britain, Netherlands, Norway, Sweden.

L. sibirica: Norway.

Picea abies: Austria, Belgium, Denmark, Finland, Germany, Great Britain, Ireland, Latvia, Norway, Russia, Sweden, Switzerland, Yugoslavia.

P. glehnii: Japan.

P. jezoensis: Siberia (Ussuri), Norway.

P. likiangensis: China.

P. smithiana: India.

Pinus cembra: Norway.

P. griffithii: India, Belgium, Pakistan.

P. mugo: Denmark, Norway.

P. mugo var. *rostrata*: Norway.

P. mugo var. *rotundata*: Norway.

P. nigra: Belgium, Denmark, Great Britain.

P. nigra var. *poiretiana*: Belgium, Great Britain, Ireland.

P. pinaster: France, Great Britain.

P. roxburghii: India.

P. sylvestris: Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain, Ireland, Latvia, Norway, Poland, Russia, Spain, Sweden.

Populus tremula: Sweden.

Quercus leucotrichophora: India.

Q. mongolica var. *grosseserrata*: Japan.

Sorbus aucuparia: Denmark, Germany, Great Britain, Norway, Poland.

S. intermedia: Denmark, Norway.

Ulmus glabra: Denmark.

Fomes annularis (Fr.) Lloyd (xx)

rot

Forms sessile conks, very hard, with heavy crust, grayish-black to blackish, glabrous, concentrically ridged, pore surface grayish, tubes unstratified and as much as 12 cm. long, mouths even, circular, very thick walled, 2.5 to 4 per mm. On many broad-leaved trees. Distributed in California, Hawaii, Jamaica, Brazil, Great Britain, Gold Coast, Congo, India, Malaya, and Formosa.

Alphonsea arborea: Philippines.

Artocarpus heterophyllus: Philippines.

Canarium ovatum: Philippines.

Cocos nucifera: Philippines.

Diospyros sp.: Philippines.

Dipterocarpus grandiflorus: Philippines.

Ficus sp.: Philippines.

Grevillea robusta: Philippines.

Hevea brasiliensis: Brazil, Malaya.

Mangifera indica: Philippines.

Parashorea malaanonan: Philippines.

Parkia javanica: Philippines.

Pithecellobium saman: Jamaica.

Tamarindus indica: Philippines.

Ulmus sp.: Great Britain.

Fomes badius (Berk.) Cke. (xx)

spongy heart rot

Conk large, sessile, ungulate, brown, and woody. On wounded hardwood trees causing a yellow spongy rot with black zone lines. Distributed in Texas, Arizona, Mexico, Bahamas, Cuba, Curacao, Dominican Republic, and Puerto Rico; also in India, Australia, and New Zealand.

Acacia aulalocarpa: Australia.

A. catechu: India.

A. scorpioides: India.

A. suma: India.

Shorea robusta: India.

Fomes cajanderi Karst. (xx)

brown cubical rot

Conk effuse-reflexed or sessile, pinkish to rose colored, blackening with age, medium sized, pores pinkish to rosy. Attacks open wounds on coniferous, rarely on hardwood, trees. Associated with a brown

rot of the wood. Distributed in Canada, the United States, and in Bermuda, where it seriously attacked the Bermuda juniper until that tree was practically exterminated by it and an insect.

Juniperus bermudiana: Bermuda.

Fomes caryophylli (Rac.) Bres. (xx) heart rot

Causes severe heart and root rot in many broad-leaved trees of the Old World Tropics, entering the living trunks and roots through wounds. Distributed in the Gold Coast, Mauritius, Ceylon, India, Java, Japan, and the Philippines.

Anogeissus latifolia: India.

Eugenia cumini: India.

Madhuca indica: India.

Shorea robusta: India.

Fomes conchatus (Fr.) Gill. (xx) hardwoods heart rot

Conk sessile to effuse-reflexed, woody, date-brown, concentrically grooved, tomentose, margins acute. Tubes cinnamon, short; pores, glistening, minute, round. Causes yellow decay of heartwood of numerous hardwoods. Distributed in North America north of Mexico; and in Europe, India, Pakistan, South Africa, and Australia.

Acacia sp.: Portugal.

Alnus sp.: Portugal.

Antidesma sp.: India.

Arbutus unedo: Portugal.

Casuarina sp.: Australia.

Cotoneaster affinis var. *bacillaris*: India.

Eucalyptus sp.: Portugal.

E. obliqua: Australia (southern).

E. piperita: Australia.

Fagus sylvatica: Germany, Norway.

Melia azedarach: Union of South Africa.

Populus sp.: Portugal, Union of South Africa.

Quercus sp.: Pakistan.

Salix sp.: Great Britain, Russia.

S. alba: Denmark.

S. caprea: Denmark.

Ulmus wallichii: Pakistan.

Fomes connatus (Weinm.) Gill. (xx) heart rot

Conk white, hirsute, corky, often with moss and algae on the upper side, sessile, medium sized, single or overlapping on a common flat base. Readily infects large open wounds on living hardwood trees. This fungus causes a soft gray rot of the heartwood, usually fruiting in some injury. In the Old World it is known as *Fomes populinus* (Fr.) Cke. Distributed in North America from British Columbia, Kansas, Iowa to Arkansas, and eastward to Georgia, Nova Scotia, and Prince Edward Island. It is generally distributed in Europe and in Siberia and South Africa.

Acer sp.: Germany, Norway, Russia.

A. mono: Siberia (Ussuri).

A. platanoides: Norway, Russia.

Aesculus hippocastanum: Denmark, Germany.

Alnus glutinosa: Russia.

Betula sp.: Germany.
B. pendula: Denmark.
B. pubescens: Russia.
Curtisea faginea: Union of South Africa.
Fagus sylvatica: Denmark, Germany.
Fraxinus excelsior: Russia.
Juniperus sp.: Russia (Caucasus).
Platanus sp.: Norway.
Populus sp.: Great Britain, Norway, Russia.
P. alba: Denmark, Great Britain, Russia.
P. balsamifera: Denmark, Norway.
P. × canadensis: Germany.
P. nigra: Great Britain, Russia.
P. tremula: Russia.
Quercus petraea: Russia.
Q. robur: Russia.
Robinia sp.: Great Britain.
Salix alba: Denmark.
S. cinerea: Denmark.
S. fragilis: Russia.
S. grandifolia: Denmark.
Sorbus aucuparia: Russia.
Tilia sp.: Great Britain, Norway.
T. cordata: Russia.
Ulmus sp.: Great Britain, Norway.
U. glabra: Russia.
U. laevis: Russia.

Fomes demidoffii (Lév.) Cke. (xx) juniper heart rot

Conk woody, hoof shaped, medium to large, zonate, sepia to black, irregularly cracked. A wound parasite causing white rot of *Juniperus* heartwood. Widely distributed in North America, Russia, Yugoslavia, Kenya, and Pakistan.

Juniperus excelsa: Russia, Yugoslavia.

J. macropoda: Pakistan.

J. procera: Kenya.

Fomes fastuosus (Lév.) Cke. (xx) white pocket rot

Conk solitary or multiple crowded on a common base, sessile, flat or convex, corky, zonate, rusty brown, margin obtuse and sterile below; pore surface yellowish, pores minute, mouths dark brown, soft and velvety; tubes stratified. Associated with a white pocket heart rot. Occurs on numerous broad-leaved trees. Distributed in Florida, Mexico, Central America, West Indies, Brazil, Chile, France, Gold Coast, South Africa, Madagascar, Mauritius, Ceylon, India, Japan, Formosa, Philippines, and Australia.

Boswellia serrata: India.

Casuarina equisetifolia: India.

Shorea robusta: India.

Fomes fomentarius (Fr.) Kickx (xx) trunk rot

Conk sessile, hoof shaped, outer layer horny, gray, zonate, medium sized. On trunks of standing and fallen hardwood trees. It infects large open wounds and causes a white mottled wood rot extending

from the first center of infection. Distributed widely in North America. Also in Europe, northern Africa, northern Asia, and Malacca.

Abies sibirica: Siberia.

Acacia sp.: Portugal.

Acer mandshuricum: Siberia (Ussuri).

A. mono: Siberia (Ussuri).

A. pseudoplatanus: Russia (Caucasus).

Aesculus hippocastanum: Austria, Denmark.

Alnus sp.: Germany, Portugal.

A. glutinosa: Denmark.

A. incana: Norway.

Betula sp.: Belgium, Denmark, Germany, Great Britain, Norway, Russia.

Carpinus sp.: Germany.

C. betulus: Russia (Caucasus).

Eucalyptus sp.: Portugal.

Fagus sylvatica: Austria, Belgium, Czechoslovakia, Denmark, Germany.

Fraxinus sp.: Russia (Caucasus).

Juglans regia: Russia (Caucasus).

Morus sp.: Portugal.

Pinus sp.: Portugal.

Populus sp.: Portugal.

P. alba: Denmark.

P. deltoides: Denmark.

P. nigra: France.

P. tremula: Russia.

Quercus sp.: Great Britain, India, Portugal.

Q. mongolica: Siberia (Ussuri).

Q. suber: Morocco, Russia (Caucasus).

Q. suber var. *occidentalis*: Russia (Caucasus).

Salix sp.: Portugal.

Tilia sp.: Great Britain.

Ulmus sp.: Denmark, Germany, Portugal.

Fomes fraxineus (Fr.) Cke. (xx) hardwoods butt rot

Conk sessile, corky to rigid, often multiple-crowded, light colored with reddish stains, later darker with a thin, hard crust, somewhat zonate, rough and uneven. Pores whitish, cinereous to brownish, tubes 2 to 10 mm. long, mouths subangular, thin walled. Associated with a white rot. Usually on trunks of *Fraxinus* near the ground; also noted on other hardwoods. Distributed in Eastern United States, Eastern Canada, British Guiana, Europe, and Japan.

Broussonetia papyrifera: France.

Fraxinus sp.: Great Britain.

Populus sp.: Russia.

Ulmus sp.: France.

Fomes igniarius (Fr.) Kickx (xx) hardwoods heart rot

Conk sessile, woody, hoof shaped, brown to black, deeply cracked pore surface gray-brown to brown, older pore layers white-stuffed pores 4 to 5 per mm. A wound parasite of living hardwood trees

rarely of conifers. Causes a spongy, yellowish-white rot bounded by black zones or lines. Distributed generally in North America, Europe, and Asia. Also in the Congo and Australia.

Acer platanoides: Russia.

Alnus fruticosa: Siberia.

A. glutinosa: Netherlands, Denmark, Russia.

A. incana: Germany, Netherlands, Norway.

A. japonica: Japan.

Betula sp.: Finland, Germany, Japan, Norway, Russia, Sweden.

B. albo-sinensis: China.

B. costata: Siberia (Ussuri).

B. pendula: Germany, Siberia.

B. pubescens: Norway, Siberia (Omsk).

Carpinus sp.: Russia (Caucasus).

C. betulus: Belgium, France, Germany.

C. cordata: Siberia (Ussuri).

Corylus avellana: Denmark.

Crataegus oxyacantha: Denmark.

Fagus orientalis: Russia (Caucasus).

F. sylvaticus: Belgium, England, France, Germany, Japan, Norway, Russia.

Fraxinus sp.: Germany, Great Britain, Norway.

Hippophaë rhamnoides: Denmark, Germany.

Juglans mandshurica: Siberia (Ussuri).

J. regia: Bulgaria, Italy.

Larix sibirica: Siberia.

Populus sp.: France, Germany, Great Britain, Latvia, Russia, Sweden.

P. alba: Netherlands, Denmark, Russia.

P. balsamifera: Siberia.

P. × canadensis: Italy.

P. nigra: Netherlands.

P. tremula: Denmark, Estonia, Germany, Norway, Russia, Siberia.

Quercus sp.: Belgium, France, Germany, Japan, Norway, Russia, Siberia.

Q. mongolica: Siberia.

Q. petraea: Denmark.

Q. robur: Denmark, Germany, Netherlands.

Q. suber: Russia (Caucasus).

Salix sp.: France, Germany, Great Britain, Norway, Poland, Russia, Siberia.

S. alba: Denmark, Germany.

S. caprea: Denmark, Norway.

S. fragilis: Denmark, Poland.

S. myrsinifolia: Norway.

S. pentandra: Denmark.

S. viminalis: Siberia.

Sorbus sp.: Russia.

Tilia × europaea: Denmark.

Ulmus sp.: Germany, Russia.

U. glabra: Germany.

Fomes igniarius var. **laevigatus** (Fr.) Overh. (xx) butt rot

Conk widely effused, semiwoody, rusty brown, margin receding each year, pore surface reddish brown, the tubes stratified, 1 to 3 mm. long each year, pores round, 8 to 10 per mm., edges thick. Associated with yellowish-white rot of hardwoods, especially birches. Definite sunken lesions are formed with the conks on the dead bark. Distributed in Canada and the United States, Europe, and Japan.

Betula sp.: Germany, Great Britain.

B. ermanii var. *communis*: Japan.

B. maximowicziana: Japan.

B. pubescens: Norway.

Salix caprea: Norway.

Fomes korthalsii (Lév.) Cke. (xx) butt rot

Conk corky, hemispherical, reflexed, flat, zonate, ferruginous, margin obtuse and sterile, pores minute and rounded. Causes butt and heart rot of *Castanopsis*. Distributed in Sumatra, Java, Hawaii, and Philippines.

Castanopsis argentea: Java.

Fomes lamaoensis (Murr.) Sacc. & Trott. (xx) brown root rot

Conk woody, sessile, thin, multiple, flat, medium sized, surface zonate, horny incrusted. Causes brown root disease in the Eastern Tropics, attacking numerous broad-leaved trees. Diseased roots are incrustated with sand, earth, and stones bound together with brown mycelium. The bark is brown or mottled with white patches. The wood is honeycombed in advanced decay. Distributed through the Eastern Tropics and Africa. Also in Trinidad, Brazil, and British Guiana.

Acacia decurrens: East Indies.

Albizia falcata: Sumatra.

Aleurites montana: Ceylon.

Areca cathecu: Malaya.

Artocarpus heterophyllus: East Indies.

Bischofia javanica: Formosa.

Bombax malabaricum: Ceylon.

Ceiba pentandra: East Indies, Malaya.

Celtis sp.: Congo.

Chlorophora excelsa: Tanganyika.

Cinnamomum camphora: Formosa.

Cocos nucifera: New Guinea.

Coffea arabica: Java, Kenya, Uganda.

C. canephora var. *robusta*: Java, West Africa.

C. liberica: West Africa.

Dalbergia latifolia: East Indies.

D. sissoo: Formosa.

Elaeis guineensis: Sumatra, Malaya.

Erythrina sp.: East Indies.

Funtumia elastica: Ivory Coast.

Herea brasiliensis: Ceylon, Congo, East Indies, French Equatorial Africa, Gold Coast, India, Indochina, Ivory Coast, Malaya, Philippines.

Leucaena glauca: East Indies.

Machilus longipaniculata: Formosa.

Maesa formosana: Formosa.

Melia azedarach: Formosa.

Murraya paniculata: Formosa.

Myristica fragrans: East Indies.

Pterocarpus indicus: East Indies.

Saurauja oldhamii: Formosa.

Shorea robusta: India.

Styrax benzoin: Ivory Coast.

Swietenia macrophylla: East Indies.

S. mahagoni: East Indies.

Tectona grandis: East Indies.

Theobroma cacao: Gold Coast, Ivory Coast, New Guinea, West Africa.

Fomes ligneus (Berk.) Cke. (xx)

root rot

Conk black, sessile, hard, heavy, applanate to hoof shaped, large, with a thin but distinct crust, the margin obtuse; pore surface cream or dirty white, the pores round, 4 per mm., with thick edges. On broad-leaved trees. Distributed in Nicaragua, St. Vincent Island of British West Indies, and Mauritius. Other reports are uncertain.

Hevea brasiliensis: Brazil.

Ocotea bullata: Union of South Africa.

Fomes lignosus (Klotzsch) Bres. (xx)

root rot

Conk sessile, drying hard and rigid, convex or flat, large, surface red-brown, zonate with yellow and orange bands; pore mouths angular to circular. On roots of *Hevea* and many jungle trees. Causes white to yellowish decay, inflicting serious losses. It forms smooth, white or reddish mycelial cords on the outside of diseased roots and the younger growths form fan-shaped sheets. Identity uncertain, is probably a collective species. Reported in African and Asiatic Tropics and from Mexico southward to Peru and Brazil.

Acacia sp.: East Indies.

Albizia fastigiata: Congo.

Aleurites montana: Ceylon, Congo, Indochina.

Altingia excelsa: Java.

Artocarpus altilis: Brazil.

A. heterophyllus: Spanish Guinea (Fernando Po), Brazil.

Bixa orellana: Malaya.

Bombax munguba: Brazil.

Calophyllum sp.: Brazil.

Calycophyllum spruceanum: Brazil.

Carapa guianensis: Brazil.

Cecropia sp.: Brazil.

Ceiba pentandra: Brazil, Congo, Malaya.

Cinnamomum camphora: Malaya.

Cocos nucifera: Brazil, Malaya, New Guinea, Spanish Guinea (Fernando Po).

Coffea arabica: Brazil, Congo.

C. canephora var. *robusta*: West Africa, Congo.

C. liberica: Ivory Coast.

Cola acuminata: Sierra Leone.

- C. vera*: Sierra Leone.
Delonix regia: Congo.
Elaeis guineensis: Ceylon, Malaya.
Erythrina sp.: Spanish Guinea (Fernando Po).
E. indica: Philippines.
Ficus sp.: Brazil, Congo, Philippines.
Grevillea robusta: Uganda.
Hevea brasiliensis: Borneo, Brazil, Ceylon, Congo, Costa Rica, Gold Coast, India, Indochina, Ivory Coast, Java, Malaya, Mexico, Philippines, Spanish Guinea (Fernando Po), Sumatra.
Hura crepitans: Brazil.
Koompassia malaccensis: Malaya.
Leucaena glauca: Congo.
Livistona cochin-chinensis: Malaya.
Lonchocarpus sericeus: Congo.
Lophira alata: Congo.
Mangifera indica: Brazil.
Melaleuca leucadendron: Uganda.
Musanga smithii: Congo.
Ochroma pyramidale: Ceylon.
Oncosperma filamentosum: Malaya.
Palaquium oblongifolium: Malaya.
Pentaclethra macrophylla: Congo.
Piptadenia africana: Congo.
Pouteria macrocarpa: Brazil.
Pterocarpus soyauxii: Congo.
Theobroma cacao: Brazil, Congo, Gold Coast, Ivory Coast, Sierra Leone, Spanish Guinea (Fernando Po), West Africa.
Zanthoxylum melanorachis: Congo.

Fomes linteus (Berk. & Curt.) Cke. (xx) spongy white rot

Forms large, corky, brown, shelving conks. Upper surface rough, concentrically zoned, radiately wrinkled. Lower surface brown with a pale tinge, velvety with a silky sheen. Pores minute, 6 to 8 per mm., tubes brown to pale brown, 0.25 cm. long, with abundant brown setae. Causes spongy white rot of broad-leaved trees. Possibly a collective species. Distributed from Texas southward to Mexico, Central America, West Indies, Trinidad, and Brazil; also in Pakistan, Australia, Kenya, East Africa, South Africa, and New Caledonia.

Acacia acialocarpa: Australia.

Olea sp.: Union of South Africa.

O. europaea: Kenya.

Fomes nigrolimitatus (Rom.) Egeland (xx) conifer heart rot

Conk resupinate, soft, punky, with thin black lines between older pore layers; pores 5 to 6 per mm. Associated with a conspicuous white pocket rot of coniferous heartwood. Distributed from Colorado and California northward to British Columbia and Alaska in North America. Also in Norway, Sweden, higher Alps of Europe, and in Japan, China, and New Zealand.

Abies georgei: China.

Picea likiangensis: China.

Fomes officinalis (Fr.) Faull (xx)**conifer heart rot**

Conk sessile, cheesy when fresh, drying rigid; knoblike to ungulate, large, white to yellowish, sulcate, rimose, interior friable when dry, bitter, pores white or discolored on drying, tubes 3 to 20 mm. long each season, mouths angular, thick walled, 3 to 4 per mm. A wound parasite of overmature coniferous trees causing brown rot. Distributed from Alaska southward to Nevada and eastward to Ontario and Quebec; widely distributed in Europe, North Africa, and in Siberia, Japan, China, and Sakhalin Island.

Abies sachalinensis: Japan.

Cedrus atlantica: Algeria, Spanish Morocco, Switzerland, Russia.

C. libanensis: Asia Minor.

Larix decidua: Austria, France, Italy, Russia, Switzerland.

L. gmelinii: Japan, Russia, Sakhalin Island, Siberia.

L. leptolepis: Japan.

L. sibirica: Russia, Siberia.

Pinus sp.: Russia.

P. cembra: Siberia.

P. tabulaeformis var. *yunnanensis*: China.

Pseudotsuga menziesii: Netherlands.

Fomes pectinatus (Klotzsch) Cke. (xx)**trunk rot**

Conk hard, sessile to effuse-reflexed, flat, medium sized, reddish brown, with thin margins; pore surface yellowish or reddish brown, pores 8 to 12 per mm. A wound parasite of broad-leaved trees. Distributed in Mexico, Central America, West Indies, Africa, Asia, Philippines, and Java.

Irvingia malayana: Malaya.

Tabernaemontana pandacahui: Philippines.

T. sphaerocarpa: Java.

Fomes pini (Fr.) Karst. (xx)**conifer heart rot**

Conks brown to nearly black, varying in shape from thin shell shaped to bracket and hoof shaped, averaging up to 20 cm. across; rough, with concentric furrows and brownish-black above; below, the pore surface is brown with the pores varying from small and round to large and irregular. Usually conks are located at dead branch stubs. Nearly all conifers except *Sequoia*, cypresses, and junipers are attacked. It is rare on hardwoods. Damage caused by it is heavy because of its general distribution on many hosts practically throughout the temperate coniferous forests of the Northern Hemisphere around the world. The decay is a white pocket rot with an early red ring stage.

Abies alba: Germany.

A. pindrow: India.

A. sachalinensis: Japan.

A. sibirica: Siberia.

Betula sp.: Siberia (Ussuri).

Cedrus deodara: India.

Larix decidua: Germany, Great Britain, Norway, Sweden.

L. gmelinii: Russia, Sakhalin Island, Siberia.

L. gmelinii var. *japonica*: Manchuria, Sakhalin Island.

L. gmelinii var. *olgensis*: Siberia.

- L. leptolepis*: Japan.
L. potaninii: China.
Picea abies: Czechoslovakia, Germany, Norway, Russia, Sweden, Switzerland.
P. jezoensis: Japan, Korea, Manchuria, Sakhalin Island, Siberia.
P. likiangensis: China.
P. obovata: Siberia.
P. omorika: Balkan Mountains.
P. smithiana: India.
Pinus sp.: Germany, Great Britain, Portugal, Russia, Siberia.
P. cembra var. *sibirica*: Siberia.
P. gerardiana: India.
P. griffithii: India.
P. halepensis: France.
P. koraiensis: Siberia.
P. monticola: Great Britain.
P. peuce: Yugoslavia.
P. pinaster: France, Portugal,
P. pinea: Portugal.
P. roxburghii: India.
P. sylvestris: Belgium, Czechoslovakia, Denmark, Germany, Latvia, Norway, Poland, Russia, Siberia, Sweden.
P. tabulaeformis var. *yunnanensis*: China.
Pseudotsuga menziesii: Great Britain.
Tsuga chinensis: China.
T. yunnanensis: China.

Fomes pinicola (Fr.) Cke. (xx) wound rot

Conk large, woody, shelf shaped, or usually hoof shaped on *Abies*; upper surface smooth, zonate, gray to black, often with a wide red margin. Lower surface white to yellowish. Causes a brown crumbly rot of coniferous and broad-leaved trees and timbers. Very common on dead timbers, but occasionally infects large wide wounds of living tree trunks. Distributed practically throughout the North Temperate Zone.

- Abies* sp.: Germany, Russia.
A. firma: Japan.
A. pindrow: Pakistan.
A. sachalinensis: Japan.
A. sibirica: Siberia.
Alnus sp.: Denmark, Sweden.
Betula sp.: Denmark, Sweden.
Fagus sylvatica: Belgium, Denmark.
Picea sp.: Russia.
P. abies: Denmark, Germany, Norway, Sweden.
P. jezoensis: Japan.
Pinus sp.: Germany.
P. densiflora: Japan.
P. khasya: India.
Quercus sp.: France, India.
Tsuga sieboldii: Japan.

Fomes pomaceus (Pers.) Lloyd (xx) heart rot

Conk woody, thick, bracket shaped, with obtuse edge, gray or black behind; pore surface brown, tubes 1 to 4 mm. long each season, older

tubes stuffed with white mycelium, mouths brown, rather thick walled, 4 to 6 per mm. This fungus occurs mostly on *Prunus* but is reported occasionally on other broad-leaved trees. Causes a white rot discolored with brownish flecks and streaks. Distributed in North America from Maine and Ontario to Georgia, westward to the prairies and from New Mexico to Montana and Manitoba. It is present generally in Europe and is reported from Siberia, India, Ceylon, Borneo, and Australia.

Abies alba: France, Germany.

Populus tremula: Norway.

Quercus mongolica: Siberia (Amur Region).

Xylia xylocarpa: India.

Fomes ribis (Fr.) Gill. (xx)

butt rot

Conk rusty brown, sessile, rigid and woody, thin, sometimes multiple-confluent and large. Pore surface brown, the tubes up to 3 mm. long, the mouths angular, averaging 5 to 8 per mm. At the bases of living stems of several shrubs and small trees. Distributed in North America from southern Canada to Maryland and Georgia westward to the prairies, in Louisiana, Montana, New Mexico, and Oregon. Apparently more common in Europe and known in Siberia and India.

Arbutus andrachne: Russia.

Quercus sp.: Russia.

Shorea robusta: India.

Ulmus sp.: Portugal.

Fomes robiniae (Murr.) Sacc. & D. Sacc. (xx)

heart rot

Conk sessile, woody, applanate to hoof shaped, large, very much fissured, with concentric furrows and thick margin; pore surface brown, pores rounded, thick walled, 4 to 6 per mm. On living broad-leaved trees, mostly of *Robinia*, causing a spongy yellowish rot in the heartwood. Distributed in North America where *Robinia* grows naturally, including Mexico and the West Indies. Rare in Europe. Widely distributed in the Tropics: South Africa, Sudan, Ceylon, India, Japan, Philippines, New Caledonia, Samoa, Hawaii, and Australia; also reported in Russia and Siberia.

Acacia armata: Australia.

A. scorpioides: Egyptian Sudan.

A. seyal: Egyptian Sudan.

Albizia lebbek: Egyptian Sudan.

Anogeissus latifolia: India.

Boswellia serrata: India.

Casuarina lepidophloia: Australia.

C. stricta: Australia.

Curtisea faginea: Union of South Africa.

Dalbergia sissoo: India.

Elaeodendron croceum: Union of South Africa.

E. glaucum: India.

Eucalyptus odorata: Australia.

E. oleosa: Australia.

E. paniculata: Australia.

E. regnans: Australia.

Heritiera minor: India.

Kiggelaria africana: Union of South Africa.

Melaleuca pubescens: Australia.

Morus alba: Japan.
Olea laurifolia: Union of South Africa.
Pistacia lentiscus: Greece.
P. mutica: Russia.
P. vera: Siberia (western).
Ptaeroxylon obliquum: Union of South Africa.
Quercus sp.: India.
Robinia sp.: Dominican Republic, Jamaica.
Schotia latifolia: Union of South Africa.
Scolopia mundtii: Union of South Africa.
Shorea robusta: India.
Terminalia bellerica: India.
T. tomentosa: India.
Xymalos monospora: Union of South Africa.

Fomes robustus Karst. (xx)

white heart rot

Conk sessile, or larger and woody; often hoof shaped, cracked, with age grayish brown to grayish black; pore surface yellowish-brown, the tubes 3 to 10 mm. long each year, white-stuffed with age, the pores circular, thick walled, 4 to 6 per mm. Causes white heart rot of dead snags or living trunks of trees, both coniferous and broad-leaved. Distributed sparsely in North America from Alaska southward to Mexico, Nicaragua, and Jamaica; generally in Europe, and in Siberia, Japan, New Zealand, Australia, and South Africa.

Abies alba: Austria, Great Britain, Poland.

A. nephrolepis: Siberia (Ussuri).

A. nordmanniana: Russia.

A. sachalinensis: Japan.

A. sibirica: Siberia.

Acacia sp.: Portugal.

Angophora lanceolata: Australia.

Banksia sp.: Australia.

Buxus sempervirens: Russia.

Callitris propinqua: Australia.

Castanea sp.: Austria.

Casuarina lepidophloia: Australia.

C. luehmannii: Australia.

C. stricta: Australia.

C. suberosa: Australia.

Eucalyptus botryoides: Australia.

E. camaldulensis: Australia.

E. fasciculosa: Australia.

E. odorata: Australia.

E. oleosa: Australia.

E. ovata: Australia.

E. saligna: Australia.

E. viminalis: Australia.

Hippophaë rhamnoides: Norway.

Larix leptolepis: Great Britain.

Melaleuca decussata: Australia.

Nothofagus fusca: Australia, New Zealand.

N. menziesii: Australia, New Zealand.

Olea laurifolia: Union of South Africa.

Picea sp.: Russia, Japan.

P. abies: Austria, Germany.

Pistacia lentiscus: Portugal.

Quercus sp.: Austria, Great Britain, Portugal, Russia, Sweden.

Thujaopsis dolabrata: Japan.

Xymalos monospora: Union of South Africa.

Fomes roseus (Fr.) Karst. (xx) conifer heart rot

Conk woody, flesh colored, medium sized, sessile, effuse-reflexed or bracketed, rugose. Tubes pale flesh color, short, stratose, pores concolorous, round, minute. Causes brown pocket rot of living trees of conifers. Distributed in the United States, British Columbia, Jamaica, Europe, China, and the Philippines.

Juniperus sp.: Great Britain.

Picea sp.: Great Britain.

P. likiangensis: China.

Fomes senex (Nees & Mont.) Cke. (xx) heart rot

Conk flattened, large, with brown, rugulose surface, without a distinct crust. Pores very minute, mouths dark brown, soft and velvety. Associated with a honeycomb heart rot of numerous trees in the Tropics. So-called *Fomes senex* in America does not agree with Old World type specimens, and may not be correctly identified. Distributed in Chile, Brazil, France, Gold Coast, South Africa, Madagascar, Mauritius, Java, Ceylon, India, Japan, Formosa, Philippines, and Australia.

Aesculus indica: India.

Boswellia serrata: India.

Casuarina equisetifolia: India.

Chukrasia tabularis: India.

Eugenia sp.: Union of South Africa.

Melia azedarach: Formosa, India.

Morus sp.: India.

Shorea robusta: India.

Fomes setulosus Lloyd (xx) white pocket heart rot

Conk convex, smooth, brown, and woody; pores very minute with brown mouths. Associated with a white pocket rot of broad-leaved trees. Distributed in Costa Rica, Ceylon, India, South Australia, New Zealand, and Tasmania.

Eucalyptus camaldulensis: Australia.

E. viminalis: Australia.

Mallotus philippinensis: India.

Fomes torulosus (Pers.) Lloyd (xx) heart rot

Conk flat and thin, pubescent when young, with raised concentric soft ridges. Pores minute, the mouths purplish. On broad-leaved trees with large open wounds. Distributed from Arkansas and Missouri to Texas and Mississippi in North America; widely scattered in Europe and in Japan.

Arbutus unedo: Portugal.

Buxus sempervirens: Portugal.

Castanea sativa: Portugal.

Pistacia lentiscus: Portugal.

Fomes tricolor (Murr.) Sacc. & Trott. (xx) **heart rot**

Conk large, flat, with black fissured crust. Pores minute, mouths brownish. A wound parasite especially on *Shorea*. Distributed in the Philippines and in India.

Shorea robusta: India.

Fomes ulmarius (Fr.) Gill. (xx) **heart rot**

Conk sessile to effuse-reflexed, convex to flat, pale above, large, pore surface pinkish, pores 5 to 8 per mm. A wound parasite of living broad-leaved trees associated with a brown cubical rot. Rarely on conifers. Distributed from Georgia to Texas and Arkansas, southward to Mexico and Honduras; possibly in British Guiana; also in Europe, South Africa, and Japan.

Cryptomeria japonica: Japan.

Fraxinus sp.: Portugal.

Ocotea bullata: Union of South Africa.

Platanus orientalis: Portugal.

Podocarpus sp.: Union of South Africa.

Populus sp.: Portugal.

Quercus sp.: Portugal.

Ulmus sp.: Portugal, Great Britain.

Virgilia capensis: Union of South Africa.

Fusamen amentorum (Delacr.) v. Arx (xx) **willow anthracnose**

Forms conidial pustules associated with anthracnose of *Salix* leaves and catkins. Distributed in Europe and Algeria.

Salix sp.: Italy.

S. aurita: Denmark.

S. cinerea: Denmark.

S. dasyclados: Denmark.

S. repens: Denmark.

S. ×smithiana: Denmark.

S. viminalis: Denmark.

Fusamen deformans (Schroet.) Karst. (xxx) **willow anthracnose**

Conidial pustules are associated with anthracnose and decay of catkins of *Salix* in northern Europe.

Salix caprea: Denmark.

Fusarium albedinis (Killian & Maire) Malencon (xx) **"bayoud"—date palm wilt**

The species of *Fusarium* are small, inconspicuous, threadlike fungi that live in the soil saprophytically on dead plant remains. Practically all *Fusarium* species can live thus, but some can become aggressive parasites on roots of many plants and cause wilt of the upper parts by interrupting water conduction. They often cause damping-off of young seedlings and inflict heavy damage. They occur everywhere that trees grow. Wilt or dieback may be caused on stems and branches, and leaf spots appear on trees beyond the seedling stage. Here they form grayish or white cottony wefts on the surface, and small pustules break through the epidermis and exude light-colored spore masses or tendrils. They can be identified only with a microscope.

The "bayoud" or white disease of date palms is apparently endemic only in the North African date-growing region. Scattered trees die slowly, year after year, with white spotting or streaking of the leaves. In an epidemic, many trees may die rapidly and for a number of years in a given area. Damage may be heavy but is limited to parts of Algeria and Morocco. A similar disease of *Elaeis* is reported in the French Congo.

Elaeis guineensis: Congo, French Equatorial Africa.

Phoenix dactylifera: Algeria, Morocco.

Fusarium avenaceum (Fr.) Sacc. (xxx) damping-off

See *Fusarium albedinis* for a general account of all Fusaria. *F. avenaceum* is one of the most widely distributed fungi in the temperate zones and is known to attack more than 150 genera of plants of all descriptions. This fungus is one of several parasites which cause damping-off of seedlings in tree nurseries, a major problem in many countries.

Pinus sp.: Argentina.

Fusarium bulbigenum var. blasticola (Rostr.) Wr. (xxx) damping-off

See *Fusarium albedinis* for a general account of the Fusaria. *F. bulbigenum* var. *blasticola* is well known as the cause of severe damping-off of young coniferous seedlings in North America and Europe.

Abies alba: Switzerland.

Cupressus sp.: Argentina.

Picea abies: Switzerland.

Pinus sp.: Argentina.

P. mugo: Denmark, Formosa.

P. mugo var. *rostrata*: Denmark.

P. sylvestris: Germany.

Fusarium coeruleum (Lib.) Sacc. (xxx) root rot

See general account under *Fusarium albedinis*. *F. coeruleum* is reported as a pathogen of *Acacia* roots in India.

Acacia melanoxylon: India.

Fusarium fuliginosporum Sibia (xxx) root rot

See general account under *Fusarium albedinis*. *F. fuliginosporum* causes rot of seedlings of deodar cedar in Italy.

Cedrus deodara: Italy.

Fusarium javanicum Koord. (xx)

See general account under *Fusarium albedinis*. Associated with wilting and death of tropical trees, also with staining of wood of *Populus*. Distributed in Italy, Africa, Asia, Java, and the Philippines.

Cinchona pubescens: Madagascar.

Hevea brasiliensis: India, Ceylon.

Populus × *canadensis*: Italy.

Theobroma cacao: Philippines, French West Africa.

Fusarium lateritium Nees (xx)

See *Fusarium albedinis* for general description. *F. lateritium* is associated with canker, dieback, damping-off of numerous woody plants especially in temperate regions, but is very widely distributed in all parts of the world.

Aleurites montana: Nyasaland.

Coffea arabica: Tanganyika.

Morus alba: Formosa.

Pinus occidentalis: Haiti.

Fusarium orthoceras Appel & Wr. (xxx) damping-off

See general account under *Fusarium albedinis*. *F. orthoceras* occurs in humus and decaying plant parts in the soil. More or less frequent in all parts of the world. Reported as pathogenic on tree seedlings in Argentina.

Eucalyptus sp.: Argentina.

Pinus sp.: Argentina.

Fusarium oxysporum Schlecht. (xxx)

See general account under *Fusarium albedinis*. This fungus lives saprophytically in soil and infected plant parts, but can assume an active pathogenic role on many kinds of plants including numerous coniferous and broad-leaved seedling trees. Distributed in North America, Europe, Argentina, and Africa.

[Information from United Nations, F.A.O., states that 500,000 acres are planted to *Pinus radiata* in the vicinity of Concepcion, Chile, but no specific information or reports of fungus damage there have been found by the writer. Presence of this widely distributed *Fusarium* in Argentina, which is causing serious damage to *P. radiata* in that country, makes it seem likely that it may also be in Chile.]

Bougainvillea glabra: Gold Coast.

Coffea canephora var. *robusta*: Congo.

Elaeis guineensis: Belgian Congo, Nigeria.

Pinus halepensis: Argentina.

P. radiata: Argentina.

Fusarium oxysporum Schlecht. var. *aurantiacum* (Lk.) Wr. (xx) damping-off

See general account under *Fusarium albedinis*. Associated with damping-off of conifers and broadleaves. Known in California, Europe, and Japan.

Abies alba: Germany.

A. cephalonica: Germany.

A. nordmanniana: Germany.

A. sachalinensis: Germany.

A. sibirica: Germany.

A. veitchii: Germany.

Juniperus communis: Germany.

Larix decidua: Great Britain, Germany.

L. leptolepis: Germany.

Picea jezoensis: Germany.

P. omorika: Germany.

P. orientalis: Germany.

Pinus densiflora: Japan.
P. ponderosa: Germany.
P. sylvestris: Germany.
P. thunbergii: Japan.
Quercus dentata: Japan.
Sciadopitys verticillata: Germany.
Thuja orientalis: Germany.

Fusarium oxysporum Schlecht. f. perniciosum (Hepting) Toole
 (xxx) **wilt**

See general account under *Fusarium albedinis*. *F. oxysporum* f. *perniciosum* has destroyed thousands of mimosa trees in the States extending from New Jersey southward to Georgia and Alabama and has been reported in Argentina. A similar disease has been reported in Russia. It causes sudden wilting and death of diseased trees, and it is practically impossible to eradicate if once established in new regions.

Albizia julibrissin: Argentina.

Fusarium solani (Mart.) Appel & Wr. (xx) **root rot**

See general account under *Fusarium albedinis*. Associated with root rot of trees and young seedlings. Distributed in North America, Europe, and India.

Dalbergia sissoo: India.

Pinus sylvestris: Sweden.

Fusarium solani (Mart.) Appel & Wr. f. albizziae Bagchee (xx)
canker

See general account under *Fusarium albedinis*. A wound parasite following freezing injury to the bark on *Albizia* tree trunks. Inoculations in wounds succeeded. Known in India.

Albizia procera: India.

Fusarium solani (Mart.) Appel & Wr. var. eumartii (Carp.) Wr.
 (xxx)

See general account under *Fusarium albedinis*. Associated with disease in cacao, coffee, etc. Distributed in the United States and in subtropical and tropical regions of Asia and Africa.

Coffea arabica: Tanganyika.

Fusarium solani (Mart.) Appel & Wr. var. martii (Appel & Wr.)
 Wr. (xxx) **damping-off**

See general account under *Fusarium albedinis*. Associated with damping-off and root rot of older seedlings. Reported in Argentina and the Cameroons.

Pinus sp.: Argentina.

Fusarium tumidum Sherb. (xx) **wilt**

See general account under *Fusarium albedinis*. Associated with disease of branches and vascular disease in woody tree stems. Distributed in the United States, Europe, and Africa.

*Xylopi*a sp.: Congo.

Fusarium vasinfectum Atk. (xx) wilt

See general account under *Fusarium albedinis*. Associated with wilt and damping-off of various plants and seedling trees. Distributed in North America, South America, Congo, and China. Probably in every cotton-growing country, cotton being especially susceptible to attack.

Elaeis guineensis: Congo.

Pinus sp.: Argentina.

Fusicladium butyrospermi Griff. & Maubl. (xx) scab

Occurs on yellow leaf spots with brown margins on *Butyrospermum* in French West Africa.

Butyrospermum parkii: French West Africa.

Fusicladium elasticae Koord. (xxx) scab

Forms olive hyphal growths on leaves of *Ficus elastica* in Java.

Ficus elastica: Java.

Fusicladium pirinum (Lib.) Fckl. var. **pyracanthae** Thuem. (xxx) scab

Forms felty, black, sooty masses on infected twigs, and black lesions on leaves and buds of *Pyracantha coccinea* in Ireland. In the United States a similar scab disease on the same host has been called *Fusicladium pyracanthae* (Oth) Rostr.

Pyracantha coccinea: Ireland.

Fusicoccum araucariae Voglino (xx)

Forms numerous subepidermal pustules on dead stems. Associated with stem rot of *Araucaria* seedlings and causes dieback. Known in Italy.

Araucaria araucana: Italy.

Ganoderma applanatum (S. F. Gray) Pat. (xx) white mottled rot

Conk sessile, woody, grayish to brown, with a hard, hornlike crust above, pore surface white to yellowish turning brown black where scratched. Tubes distinctly stratified, the mouths circular, thick walled, 4 to 6 per mm. Rather frequent in old open wounds on nearly all kinds of trees. Distribution practically worldwide.

Abies sp.: Russia.

A. alba: Ireland, Poland.

A. sachalinensis: Japan.

Acacia sp.: Portugal.

A. catechu: India.

A. decurrens var. *mollis*: Union of South Africa.

A. horrida: Australia, New South Wales.

A. scorpioides: India.

Acer mono: Japan.

A. pseudoplatanus: Ireland.

- Aesculus hippocastanum*: Ireland.
Albizia fastigiata: Union of South Africa.
Alnus sp.: Austria.
A. formosana: Formosa.
Angophora lanceolata: Australia.
Arbutus unedo: Portugal.
Artocarpus heterophyllus: India.
Betula pendula: Siberia.
B. platyphylla: Japan.
Buxus sempervirens: Portugal.
Castanea sp.: Ireland.
C. sativa: Portugal.
Celtis kraussiana: Union of South Africa.
Cinnamomum cecidodaphne: India.
Curtisia faginea: Union of South Africa.
Dalbergia sissoo: India.
Diospyros discolor: Philippines.
Elaeis guineensis: Angola, Congo, Sao Tomé.
Eucalyptus sp.: Australia, New South Wales, Portugal.
E. regnans: Australia (Victoria).
Fagus japonica: Japan.
F. sylvatica: Austria, Denmark, France, Germany, Ireland.
Fraxinus sp.: France, Great Britain, Ireland.
F. excelsior: Denmark, Poland.
Mallotus philippinensis: India.
Morus sp.: France.
Olea laurifolia: Union of South Africa.
Picea abies: Poland.
Pinus sp.: Portugal.
Podocarpus sp.: Union of South Africa.
Populus sp.: France, Netherlands.
P. alba: Norway.
Quercus sp.: France, Great Britain, Ireland, Portugal.
Q. mongolica: Siberia (Amur region).
Q. mongolica var. *grosseserrata*: Japan.
Q. myrsinaefolia: Japan.
Q. stenophylla: Japan.
Salix alba: Denmark.
S. urbaniana: Japan.
Schinus molle: Australia.
Shorea robusta: India.
Tilia sp.: Ireland.
T. ×europaea: Denmark.
T. japonica: Japan.
Toona ciliata: India.
Ulmus sp.: Ireland, Portugal.

Ganoderma lucidum (Fr.) Karst. (xx) **heart rot**

Conk sessile, multiple, leathery to corky, rigid on drying, circular to reniform, large, with a coat of reddish varnishlike substance drying to a thin crust. The tubes 2 to 18 mm. long, with thin-walled pores about 4 per mm. Stem rarely formed, lateral up to 10 cm.

long. On broad-leaved trees causing butt rot. Rare on conifers. Widely distributed in Eastern United States, Europe, Africa, and India.

Acacia sp.: East Indies, Union of South Africa.

A. catechu: India.

A. confusa: Philippines.

A. decurrens var. *mollis*: Union of South Africa.

A. melanoxylon: India.

A. scorpioides: India, Egyptian Sudan.

Acrocarpus fraxinifolius: India.

Albizia acle: Philippines.

A. amara: Union of South Africa.

A. falcata: Sumatra.

A. fastigiata: Union of South Africa.

A. procera: India.

Aleurites moluccana: Philippines.

Anacardium occidentale: Africa (Seychelles).

Areca catechu: India, Malaya.

Bambusa arundinacea: Philippines.

Carpinus sp.: Great Britain.

Castanea sativa: Portugal.

Casuarina equisetifolia: India.

C. stricta: Argentina.

Cocos nucifera: India, Malaya, New Guinea.

Corylus avellana: Norway.

Dalbergia latifolia: India.

D. sissoo: India, Philippines.

Delonix regia: India, New Guinea, Philippines, Union of South Africa.

Dracontomelum dao: Philippines.

Elaeis guineensis: Angola, Belgian Congo, Ceylon, East Indies, Gold Coast, Malaya, Nigeria.

Eucalyptus citriodora: India.

E. globulus: Argentina.

Ficus carica: Argentina, Portugal.

Gourliea spinosa: Argentina.

Guazuma sp.: India.

Haematoxylon campechianum: Jamaica.

Hevea sp.: Ceylon, India.

H. brasiliensis: Ceylon, East Indies.

Larix sp.: Siberia.

Leucaena glauca: Philippines.

Melia azadirachta: Egyptian Sudan, India.

Morus alba: India.

Olea laurifolia: Union of South Africa.

O. verrucosa: Union of South Africa.

Parashorea plicata: Philippines.

Picea sp.: Russia.

P. abies: Norway.

Pongamia pinnata: India.

Populus sp.: Portugal.

Ptaeroxylon obliquum: Union of South Africa.

Pterocarpus indicus: Malaya, Philippines.

P. marsupium: India.
Quercus sp.: Great Britain, Portugal.
Q. semicarpifolia: India.
Robinia pseudoacacia: Argentina.
Salix sp.: Union of South Africa.
Shorea robusta: India.
Tamarindus indica: Ceylon.
Taxus baccata: Poland.
Tipuana tipu: Argentina.
Toona ciliata: India.
Ulmus sp.: Great Britain.
Wallaceodendron celebicum: Philippines.
Ziziphus mucronata: Union of South Africa.

Ganoderma pseudoferreum (Wakef.) v. Overeem & Steinm.
(xx)

Conk sessile, flat, multiple, azonate, upper surface fissured, ferruginous to fuscus-umbrinous, margin sterile; pores minute, round, thick walled. A wound parasite on numerous broad-leaved trees. Distributed in the Congo, French Equatorial Africa, India, Indochina, Malaya, and East Indies.

Albizia moluccana: Malaya.
Aleurites montana: Indochina.
Arenga pinnata: Malaya.
Cinnamomum sp.: Java.
Cocos nucifera: Malaya.
Coffea arabica: East Indies.
Durio zibethinus: Java.
Elaeis guineensis: Malaya.
Enterolobium cyclocarpum: Malaya.
Erythrina sp.: East Indies.
Ficus benjamina: East Indies.
Hevea sp.: French Equatorial Africa.
H. brasiliensis: Belgian Congo, India, Indochina, Java, Malaya, Sumatra.
Melia azedarach: East Indies.
Myristica sp.: Malaya.
Palaquium oblongifolium: Malaya.
Parkia roxburghii: Malaya.
Peltophorum inerme: Malaya.
Pterocarpus sp.: Malaya.
Theobroma cacao: Java, Malaya.
Toona sureni: East Indies.

Ganoderma resinaceum Boud. (xx) heart rot

Conk large, sessile, rounded, concentrically zonate, crust shiny, yellowish-chestnut to umber red; edges rounded, acute; pores minute, rounded, fuscus-cinnamon. A wound parasite on hardwoods and conifers in Europe.

Acer sp.: Russia.
Pinus sp.: Great Britain.
Quercus sp.: Russia, Austria, Great Britain.

Gibberella lateritia (Ness) Snyd. & Hans. (xx)

Forms perithecia on lesions and causes blight of buds on broad-leaved trees. Known in southeastern United States, Japan, and Yugoslavia.

Morus alba: Japan.

Robinia sp.: Yugoslavia.

Gibberella moricola (de N.) Sacc. (xx)

twig canker

Forms perithecia on lesions of twigs of *Morus* and *Ficus carica*. Distributed in Europe, China, and Japan.

Ficus carica: England.

Morus sp.: Germany, Netherlands.

M. alba: Germany, Japan.

M. australis: Japan.

Gibberella xylarioides (Steyskal) Heim & Saccas (xx)

vascular wilt

An aggressive wound parasite of injuries reaching the conductive tissue of woody stems of *Coffea* plants, and causing wilt of above-ground parts and final death. Known in French Equatorial Africa, Gold Coast, and the Congo.

Coffea canephora var. *robusta*: Belgian Congo, Ivory Coast.

C. dewevrei: Congo.

C. excelsa: Belgian Congo, Ivory Coast.

C. neo-arnoldiana: Belgian Congo.

Gliocladium vermosanii (Biourge) Thom (xx)

palm decay

Causes decay of buds, leaves, and stems of palms. Inoculations in wounds and without wounds in one species proved the fungus to be pathogenic. Known in California and the Congo.

Areca sp.: Congo.

Gloeosporium illicii Hemmi (xxx)

anthracnose

Conidial pustules form on anthracnose spots on *Illicium* in Japan.

Illicium anisatum: Japan.

Gloeosporium kawakamii Miyabe (xxx)

witches'-broom

Causes witches'-brooms on *Paulownia* in Japan; also reported in Italy on *Daphniphyllum*. The leaves on the brooms are small, pale green and curled, with red-brown spots on the blades and petioles. Seedlings often are killed. Distributed in Japan and Italy.

Paulownia coreana: Japan.

P. tomentosa: Japan.

Gloeosporium lunatum Ell. & Ev. (xxx)

joint decay

Causes decay of joints of *Opuntia*, which threatened to occupy the entire grazing area of Australia about 4 decades ago. The fungus was taken from North America in the hope that it would become epidemic and halt further advance of the pest. In fact, it soon started to exterminate the *Opuntia*; a fine example of the newly introduced disease when conditions favor it.

Opuntia aurantiaca: Australia.

O. stricta: Australia.

O. vulgaris: Australia.

Gloeosporium meliicola Speg. (xxx)**anthracnose**

Conidial pustules are associated with anthracnose of leaves of *Melia* in Argentina.

Melia azedarach: Argentina (Salta).

Glomerella cingulata (Ston.) Spauld. & Schrenk (xxx)**anthracnose**

Forms perithecia sunken in the substratum. Causes decay lesions of all aerial parts of numerous broad-leaved all-aged trees in practically all temperate and tropical regions of the world. *Colletotrichum gloeosporioides* is the imperfect stage of *Glomerella cingulata*.

Aleurites fordii: Nyasaland.

Canarium album: China.

Coffea arabica: Congo, India, Madagascar, New Caledonia, Tanganyika, Uganda.

C. bukohensis: Tanganyika.

C. canephora var. *robusta*: New Hebrides, Sumatra, Tanganyika.

C. excelsa: Tanganyika.

Elaeis guineensis: Gold Coast.

Eucalyptus cladocalyx: Tanganyika.

Eugenia caryophyllata: Mauritius.

Ficus elastica: Italy.

Hevea brasiliensis: Brazil, Ceylon, Congo, Costa Rica, Fiji, French Equatorial Africa, India, Indochina, Indonesia, Malaya, Nigeria, Philippines, Sierra Leone, Uganda.

Juniperus silicicola: Mauritius.

Mangifera indica: Madagascar, Mozambique, Mauritius, Tanganyika, Colombia, Venezuela, Jamaica.

Paulownia tomentosa: Japan.

Persea americana: Philippines, Sierra Leone, Tanganyika, Uganda.

Tabebuia rosea: Mauritius.

Theobroma cacao: Gold Coast, Tanganyika.

Glomerella cinnamomi Yoshino (xxx)**anthracnose**

Forms perithecia sunken in the diseased bark or leaves. Causes anthracnose lesions on leaves, petioles, buds, and young shoots of nursery stock of *Cinnamomum*; the lesions are rounded, reddish-brown, fading to light brown. Stems are girdled by brown rot, the plants dying. Known in Formosa and Japan.

Cinnamomum camphora: Formosa, Japan.

Glomerella coffeicola Avena-Sacca (xxx)**anthracnose**

Forms perithecia sunken in the tissues of bark and leaves. Causes anthracnose lesions on leaves and shoots of *Coffea* in Brazil.

Coffea arabica: Brazil.

Glomerella gossypii (Southworth) Edg. (xxx)**anthracnose**

Forms perithecia immersed in bark and leaf tissues and causes anthracnose lesions on cotton bolls and kapok seed pods. Distributed in the United States, Egypt, South and West Africa, Bulgaria, and Trans-Caucasia. It is present in most cotton-growing countries.

Ceiba pentandra: Congo.

Gnomonia leptostyla (Ces. & de N.) Kleb. (xxx) leaf spot

Forms globular perithecia immersed in the substratum. Affects all *Juglans* and some *Carya* species of North America, Europe, and Asia. The leaf spots produced are small, white to grayish-yellow with brown edges, irregular, limited to interveinal areas on the lower leaf surface or on the young fruits. Heavily spotted leaves or fruits may fall prematurely. Repeated attacks may weaken trees until they die. Distributed in North America, Europe, Iran, and Japan.

Carya sp.: France.

Juglans sp.: France, Germany, Italy, Japan, Portugal, Yugoslavia.

J. ailantifolia: France.

J. ailantifolia var. *cordiformis*: France.

J. hindsii: France.

J. nigra: Germany.

J. regia: Denmark, France, Germany, Great Britain, Italy, Russia.

J. × sinensis: France.

Pterocarya sp.: France.

P. fraxinifolia: Iran.

Gnomonia oharana Matsum. (xxx) elm leaf spot

Forms perithecia which carry viable spores to pass the winter and start spring infection. Causes leaf spots of *Ulmus* and defoliation results from severe attacks. Known in Japan.

Ulmus japonica: Japan.

U. parvifolia: Japan.

U. pumila: Japan.

Gnomonia pseudoplatani Tub. (xxx) maple leaf blotch

Occurs on large lesions on leaves of *Acer* in Germany.

Acer pseudoplatanus: Germany.

Gnomonia quercus-ilecis Berl. (xxx) oak leaf spot

Associated with leaf spots of *Quercus* in Italy.

Quercus ilex: Italy.

Gnomonia veneta (Sacc. & Speg.) Kleb. (xxx) blight

Causes brown streaks and spots along the main leaf veins, on petioles, and on young twigs leading to premature leaf fall and twig blight of *Platanus*. Distributed in North America and Europe and reported in Argentina.

Platanus × acerifolia: France, Germany, Great Britain.

P. occidentalis: Argentina, Denmark, France.

P. orientalis: Great Britain, Denmark, Corsica, France, Italy, Germany.

P. orientalis var. *insularis*: Germany.

Gnomoniella fimbriata (Fr.) Sacc. (xxx) leaf spot

Stroma flat-pulvinate, shiny-black, 0.5 to 2 mm. wide. Associated with leaf spots on *Carpinus*. Distributed in North America, Europe, Iran, and Japan.

Carpinus sp.: Germany, Iran (Ziarat Forest), Norway.

C. betulus: Denmark.

C. erosa: Japan.

Gnomoniella tubiformis (Tode) Sacc. (xxx) **leaf spot**

Occurs on chestnut-colored leaf spots on *Alnus* in Alaska, United States, and Europe.

Alnus cordata: Italy.

A. glutinosa: Denmark, Great Britain, Norway.

A. incana: Denmark, Norway.

Graphiola applanata Syd. & Butl. (xxx) **false smut**

Forms small, black, hard, raised fungus bodies on leaves of *Phoenix* in India and Pakistan.

Phoenix sylvestris: India, Pakistan.

Graphiola arengae Rac. (xxx) **false smut**

Forms hard raised fungus bodies on circular yellow leaf spots on *Arenga*. Known in the Philippines.

Arenga ambong: Philippines.

Graphiola borassi Syd. & Butl. (xxx) **false smut**

Forms false smut pustules on leaves of *Borassus* in India.

Borassus flabellifer: India.

Graphiola cocoina Pat. (xxx) **false smut**

Forms small, black, raised fungus bodies on small, brown spots on leaves of *Cocos* in Fiji and Tahiti.

Cocos nucifera: Tahiti, Fiji.

Graphiola phoenicis (Moug.) Poit. (xxx) **false smut**

Forms small, black, globular spore cases on both sides of leaves of palms in tropical countries around the world.

Phoenix sp.: Congo, Egypt, El Salvador, Gold Coast.

P. canariensis: Denmark, Peru.

P. dactylifera: Algeria, Anglo-Egyptian Sudan, Barbados, Brazil, Denmark, Formosa, India, Jamaica, Mauritius, Peru, Philippines, Puerto Rico, Seychelles, Tanganyika, Venezuela.

P. hanceana var. *formosana*: Formosa.

P. paludosa: India.

P. sylvestris: India.

Sabal causiarum: Puerto Rico.

Griggsia cyathea F. L. Stevens & Dalbey (xx)

Forms numerous slightly raised black spots on leaves of *Cyathea* in Puerto Rico.

Cyathea arborea: Puerto Rico.

Guignardia aesculi (Pk.) V. B. Stewart (xxx) **leaf blotch**

Causes small dark red or brown spots ranging in size to large blotches attacking much of the leaf surface and the petioles of *Aesculus*, especially *A. hippocastanum*. Premature defoliation often results. Distributed in North America where these hosts grow. Also in Belgium, France, Germany, and Great Britain.

Aesculus glabra: Germany.

A. hippocastanum: Germany.

A. indica: Belgium, France, Great Britain.

Guignardia atropurpurea Chardon (xxx) **leaf spot**

Occurs on rounded spots, 1 to 5 mm. in diameter, on leaves of *Miconia* in Brazil.

Miconia sp.: Brazil.

Guignardia betulae (Auersw.) Sacc. & Trott. (xxx) **leaf spot**

Occurs on leaf spots of *Betula*. Known in Germany and Denmark.

Betula sp.: Germany.

Guignardia buxi Desm. (xxx) **box leaf spot**

Occurs on yellow spots on the lower surface of *Buxus* in the United States and Europe.

Buxus sempervirens: Spain.

Guignardia javanica Koord. (xxx) **leaf spot**

Associated with indefinite, large, dark leaf spots on *Cordia* in Java.

Cordia suaveolens: Java.

Guignardia punctiformis Chardon (xxx) **leaf spot**

Occurs on leaf spots rounded, brownish, 4 to 6 mm. across on *Miconia* in Brazil.

Miconia sp.: Brazil.

Guignardia rhytismophila Rehm (x) **leaf spot**

Associated with *Rhytisma* on leaves of *Acer* in East Germany.

Acer pseudoplatanus: Germany (Saxony).

Guignardia yersini Vincens (xxx) **leaf spot**

Associated with leaf spots of *Cinchona* in Indochina.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Gymnosporangium amelanchieris (DC.) E. Fisch. (xxx) **juniper rust**

Forms small galls on the lower surfaces of leaves of *Amelanchier*. On *Juniperus* it causes diffuse swollen areas along the branches. Distributed in Europe and Japan.

Amelanchier asiatica: Japan.

A. ovalis: France, Germany, Italy, Switzerland.

Juniperus communis: Germany, Italy, Switzerland.

J. rigida: Japan.

Gymnosporangium bermudianum Earle (xxx) **juniper rust**

Forms rounded galls 6 to 12 mm. in diameter, reddish-brown on small stems, with a later stage on the same galls on *Juniperus*. Distributed in the Gulf States and the Bermuda and Bahama Islands.

Juniperus bermudiana: Bermuda.

Gymnosporangium clavariiforme (Pers.) DC. (xxx)**juniper rust**

Forms cylindric fungus fruits containing cinnamon-brown, powdery spores on leaves, petioles, twigs, and fruits of *Amelanchier* and related rosaceous shrubs and trees. An alternate stage forms elongate fusiform swellings in season, with numerous projecting spore horns 5 mm. long, on the branches of *Juniperus*. Distributed in the United States, Europe, Morocco, and Asia.

× *Crataegomespilus grandiflora*: Germany.

Crataegus calycina: Norway.

C. heldreichii: Greece.

C. intricata: Norway.

C. × lambertiana: Norway.

C. monogyna: Corsica, Denmark, Great Britain, Morocco, Norway, Russia (Crimea), Sweden.

C. nigra: Russia (Crimea), Sweden.

C. oxyacantha: Denmark, France, Germany, Great Britain, Italy, Norway.

C. pentagyna: Germany.

C. sanguinea: Norway.

C. scabrifolia: China.

C. succulenta: Norway.

Juniperus communis: Austria, France, Denmark, Germany, Great Britain, Norway, Poland, Sweden, Yugoslavia.

J. communis var. *stricta*: Denmark.

J. oxycedrus: France, Greece, Russia.

J. rigida: Korea.

Sorbus aria: Sweden.

S. intermedia: Norway.

Gymnosporangium cornutum Arth. ex Kern (xxx)**juniper rust**

Causes slight fusiform swelling of smaller woody branches and, less often, locally thickened brown patches on needles of *Juniperus* in spring. Later, thickened, discolored areas with annular groups of projecting fungus tubules develop on leaves of *Sorbus*. Distributed in temperate and subarctic North America, Europe, North Africa, and Siberia, Japan, Kamchatka, and South Sakhalin.

Juniperus communis: Great Britain, Norway.

J. communis var. *nipponica*: Japan.

J. rigida: Japan.

Sorbus americana: Norway.

S. aucuparia: Great Britain, Japan, Norway, Siberia.

S. × hybrida: Norway.

S. intermedia var. *arranensis*: Norway.

S. kamtschatscensis: Kamchatka.

S. sambucifolia: Kamchatka.

Gymnosporangium cunninghamianum Barcl. (xxx)**cypress rust**

In spring forms hemispherical, dark-brown, compact bodies attached to twigs and larger branches of 4 to 5 mm. diameter on *Cupressus*. Later the green leaves of *Pyrus pashia* and *Cotoneaster* are discolored

with patches, orange-red above and yellowish below, and about twice their normal thickness in spots where rust bodies are deeply sunken but project distinctly above the leaf surface. Distributed in India, Pakistan, and China.

Cupressus duclouxiana: China, India, Pakistan.

Gymnosporangium distortum Arth. & Cumm. (xxx)

cypress rust

Distorts infected *Cotoneaster* leaves and twigs that bear rust pustules over the entire infected area. Has an alternate stage on *Cupressus*. Known in India and Kashmir.

Cupressus duclouxiana: India.

Gymnosporangium exiguum Kern (xxx)

juniper rust

Forms rust pustules on needles of *Juniperus* in spring; later, an alternate stage on leaves and fruits of *Crataegus* causes hypertrophy of veins, petioles, and fruits and forms cinnamon-brown spores which infect *Juniperus* needles. Known in the United States and Mexico.

Juniperus deppeana: Mexico.

Gymnosporangium formosanum Hirat. & Hashioka (xxx)

juniper rust

Infects living needles of *Juniperus* in Formosa.

Juniperus squamata: Formosa.

Gymnosporangium fusisporum E. Fisch. (xxx)

juniper rust

Forms rust pustules on leaves of *Cotoneaster* and *Juniperus* in Switzerland.

Juniperus sabina: Switzerland.

Gymnosporangium gäumanni Zogg (xxx)

juniper rust

Forms cinnamon to blackish-brown fungus pustules on needles of *Juniperus* in Switzerland.

Juniperus communis var. *saxatilis*: Switzerland.

Gymnosporangium haraeum Syd. (xxx)

juniper rust

Forms reddish-brown gelatinous masses on leaves of *Juniperus* in the spring. Later rust pustules appear on somewhat thickened brownish spots on leaves of *Pyrus sinensis* and *Crataegus* and contain powdery, pale, cinnamon-brown spores. Distributed in China, Korea, and Japan. Sporadic on the Pacific Coast of the United States on plants grown for ornament. Infected plants were shipped into Connecticut but the rust was detected on arrival.

Crataegus cuneata: China.

C. hupehensis: China.

C. pinnatifida: China.

Juniperus chinensis: China, Japan, Korea.

J. chinensis f. *japonica*: Japan.

Gymnosporangium idetae Yamada ex K. Hara (xxx) **juniper rust**

Forms rust pustules with grayish-brown powdery spores on leaves of *Amelanchier* in summer. In spring, causes fusoid swellings of *Juniperus* twigs with brown, hemispheric fungus masses up to several inches across. Distributed in Japan.

Amelanchier asiaticum: Japan.

Juniperus rigida: Japan.

Gymnosporangium inconspicuum Kern (xxx) **juniper rust**

Early seasonal stage forms fusiform swellings of stems of *Juniperus*. Grows in crowded groups on thickened discolored spots on leaves of *Photinia*. Spores powdery, cinnamon-brown in summer. Imported into Connecticut from Japan; detected, and diseased plants were destroyed. Distributed in Japan, China, and Korea.

Juniperus chinensis: Japan, China.

J. chinensis f. *japonica*: Japan.

Photinia amphidoxa: China.

P. parvifolia: China.

P. villosa: China, Japan.

P. villosa var. *laevis*: Japan.

Gymnosporangium malloti Hirat. (xxx) **rust**

Forms projecting rust tubules on leaves.

Mallotus japonicus: Japan.

Gymnosporangium meridissimum Crowell (xxx) **cypress rust**

Forms pulvinate, brown, round galls on twigs of *Cupressus* in Guatemala.

Cupressus lusitanica var. *benthamii*: Guatemala.

Gymnosporangium mespili (DC.) Kern (xxx) **juniper rust**

Forms its spring stage on leaves and stems of *Crataegus*, *Cotoneaster*, and related cultivated fruits. Later, dark chestnut-brown growths form on fusiform swellings on branches of *Juniperus* in Europe and Asia.

Cotoneaster sp.: Germany.

C. integerrima: Siberia.

Crataegus monogyna: Denmark, Great Britain.

C. oxyacantha: France, Great Britain, India, Kashmir.

Juniperus macropoda: Kashmir.

J. oxycedrus: France.

J. phoenicea: France, Switzerland.

J. sabina: Germany, Great Britain, Switzerland.

Gymnosporangium minus Crowell (xxx) **cypress rust**

Forms pulvinate, brown, rust telia on stems of *Cupressus* in Greece.

Cupressus sempervirens: Greece.

Gymnosporangium nipponicum Yamada (xxx) **juniper rust**

Forms tubular outgrowths with powdery spores on leaves of *Sorbus* in summer; later produces small galls on leaves and branches of *Juniperus*. Distributed in Japan and China.

Juniperus chinensis var. *sargentii*: Japan.

Sorbus alnifolia: China.

S. aucuparia: Japan.

Gymnosporangium orientale Syd. (xxx) **hawthorn rust**

Forms projecting slender tubules on fruits and rarely on twigs of *Crataegus*. Distributed in Greece, Russia, Asia Minor, and Iran.

Crataegus insecnae: Russia, Iran.

Gymnosporangium sabinae (Dicks.) Wint. (xxx) **juniper-pear rust**

Causes swellings on twigs, deformed fruits, and leaf spots on *Pyrus* and slight swellings of twigs and branches of *Juniperus*. Generally distributed in Europe.

Juniperus chinensis f. *japonica*: France.

J. excelsa: Yugoslavia.

J. fortidissima: Denmark.

J. oxycedrus: Germany.

J. phoenicea: Germany.

J. sabina: Denmark, France, Germany, Great Britain.

J. sabina f. *tamariscifolia*: Denmark.

J. sphaerica: France.

Gymnosporangium shiraianum K. Hara (xxx) **juniper rust**

Forms thickened orange-yellow spots with orange or reddish margins on the lower side of leaves of cultivated *Pyrus*. Each spot bears tubules with fulvous powdery spores. On *Juniperus* it forms small leaf galls, flattened-hemispherical and purple-brown to chestnut. Known in Japan.

Juniperus conferta: Japan.

Gymnosporangium solenoides (Diet.) Kern (xxx) **rust**

Forms elongated protuberances of a gall-like nature 2 to 3 mm. high on leaves of *Sorbus* and containing cinnamon-brown spores. Later, an alternate stage shows as fusiform swellings with a knotty, rough surface on stems of *Chamaecyparis*. Reddish-brown, pulvinate spore pustules burst forth on the surface of the swollen stem shedding brownish spores. Distributed in Japan.

Chamaecyparis pisifera: Japan.

Sorbus alnifolia: Japan.

S. aria: Japan.

Gymnosporangium speciosum Pk. (xxx) **juniper rust**

Causes large elongate swellings of branches of *Juniperus*. Distributed in Colorado, Arizona, and New Mexico, and in Guatemala.

Juniperus ashei: Guatemala.

Gymnosporangium torminali-juniperinum E. Fisch. (xxx) **juniper rust**

Forms projecting fungus tubules on hypertrophied leaf spots on *Sorbus*, and dark chestnut-brown, hemispherical small masses on leaves of *Juniperus*. Distributed in Europe.

Juniperus communis: Switzerland.

Sorbus torminalis: Germany.

Gymnosporangium tremelloides Hartig (xxx) **juniper rust**

Forms crowded groups of fungus aecia on thickened, discolored spots on leaves of *Crataegus* and telial spore cushionlike brown masses on juniper needles, young twigs, and larger branches, the latter up to 1 to 4 cm. long. There is uncertainty about the identity of this fungus, and it is impossible to give its distribution from the literature. It is European in known distribution.

Crataegus oxyacantha: Norway.

C. sanguinea var. *chlorocarpa*: Norway.

C. succulenta: Norway.

Juniperus communis: France, Denmark, Sweden.

Sorbus aria: Denmark, Germany, Norway, Sweden.

S. aucuparia: Sweden.

S. chamaemespilus: Germany.

Gymnosporangium tsingshenensis Wei (xxx) **cypress rust**

Known only in the telial stage on *Cupressus*. It forms telial galls or cushionlike excrescences on all-aged branches and trunks, up to 100 years old. The gelatinous spore horns are scarlet shading to orange and brown with age. Known only in China.

Cupressus funebris: China.

Gymnosporangium yamadae Miyabe (xxx) **juniper rust**

Forms telial galls on stems of *Juniperus*. They are spherical and reddish brown. The alternate aecial stage is known on *Malus*. Distributed in China, Japan, Korea, and Manchuria.

Juniperus chinensis: China, Manchuria, Japan, Korea.

J. chinensis f. *japonica*: Japan.

J. chinensis var. *sargentii*: Japan.

Hadronema orbiculare Syd. (x) **leaf spot**

Forms small circular, velvety fungus patches on leaves of *Quercus*. Distributed in Japan and the Philippines.

Quercus glauca: Japan.

Hainesia kolae Speg. (xxx) **anthracnose**

Anthracnose of *Cola acuminata* imported to Argentina from Africa. On cotyledons. Distributed in Dakar, Africa, and Argentina.

Cola acuminata: Argentina (La Plata).

Hapalophragmiopsis ponderosa (Syd. & Butl.) Thirum. (xxx) **gall rust**

Produces brown telial sori on woody galls, 1 to 5 cm. in diameter, on *Acacia* in India and Pakistan.

Acacia leucophloea: India, Pakistan.

Haplophragmium acaciae Bacc. (xxx) gall rust

Forms rust galls on branches of *Acacia* in Italian Somaliland.
Acacia sp.: Italian Somaliland.

Haplographium calophylli Wiehe (xxx) wilt

Causes a killing vascular wilt of *Calophyllum* in Mauritius and El Salvador. Apparently has gone from Eastern Tropics to western ones. Known in Mauritius and El Salvador.

Calophyllum brasiliense: El Salvador.

C. tacamahaca: Mauritius.

Helicobasidium compactum Boed. (xxx) root rot

Causes root rot of various trees accompanied by decline of the foliage, production of sprouts, and death. Distributed in the Old World Tropics and reported in El Salvador.

Albizia falcata: Sumatra.

Chlorophora excelsa: Tanganyika.

Coffea arabica: East Indies, El Salvador.

Hevea brasiliensis: East Indies.

Leucaena glauca: East Indies.

Pinus roxburghii: Union of South Africa.

Tectona grandis: East Indies.

Helicobasidium longisporium Wakef. (xxx) root rot

Reported as a new species causing root rot of *Theobroma* in Uganda.

Theobroma cacao: Uganda.

Helicobasidium mompa Tanaka (xxx) violet root rot

Forms purple rhizomorphs on roots and bases of trunks of trees. A mycelial mat develops on the soil surface and upward a few inches on the stems. This mat has a powdery white spore-producing surface until July when it becomes brown above and blackish red purple beneath. The leaves of diseased trees become smaller and fall earlier than usual, and the tree dies when most of the roots are dead. Distributed in Japan, Formosa, and probably Korea and China. Reported in Java but a mistake in identity of the fungus makes the report doubtful.

This fungus is a distinct threat to many food plants as well as the woody-stemmed trees. It seems to be especially virulent on mulberry trees. Its ability to live saprophytically in plant debris in soil makes it very difficult to eliminate if once established in new regions.

Acer campestre: Japan.

A. mono: Japan.

Aphananthe aspera: Japan.

Aralia spinosa: Japan.

Broussonetia kazinoki: Japan.

B. papyrifera: Japan.

Calophyllum inophyllum: Japan.

Castanea crenata: Japan.

Celtis sinensis: Japan.

Chamaecyparis obtusa: Japan.

C. pisifera: Japan.

Cinnamomum camphora: Japan.
Cryptomeria japonica: Japan.
Diospyros kaki: Japan.
Eucommia ulmoides: Japan.
Euptelea polyandra: Japan.
Ficus carica: Japan.
F. elastica: Japan.
F. retusa: Japan.
Firmiana platanifolia: Japan.
Ginkgo biloba: Japan.
Juglans ailantifolia: Japan.
Mallotus japonicus: Japan.
Meliosma myriantha: Japan.
Morus alba: Japan, China, Formosa.
M. australis: Formosa, Japan.
Paulownia tomentosa: Japan.
Photinia glabra: Japan.
Picea abies: Japan.
Pinus densiflora: Japan.
P. parviflora: Japan.
Pistacia chinensis: Japan.
Platanus orientalis: Japan.
Platycarya strobilacea: Japan.
Populus maximowiczii: Japan.
P. nigra: Japan.
Quercus acuta: Japan.
Q. acutissima: Japan.
Q. gilva: Japan.
Q. glandulifera: Japan.
Q. myrsinaefolia: Japan.
Rhaphiolepis umbellata: Japan.
Salix bakko: Japan.
S. vulpina: Japan.
Sapindus mukorossii: Japan.
Sapium japonicum: Japan.
Styrax shiraiana: Japan.
Torreya nucifera: Japan.
Ulmus pumila: Japan.
Zelkova serrata: Japan.

***Helicobasidium purpureum* (Tul.) Pat. (xxx) root rot**

Known in its sterile form as *Rhizoctonia crocorum* on numerous root crops, and nursery plants of conifers and broad-leaved species. Occasionally root rot forms a basidiomycetous fruiting body. In this stage it formerly was called *Corticium vagum*, but in recent years is known as *Helicobasidium purpureum*. Distributed in North and South America, Europe, Australia, Asia, and Africa.

Abies alba: Denmark.
Acer campestre: Italy.
Araucaria cunninghamii: Australia.
Crataegus monogyna: Denmark.
Fagus sylvatica: Denmark.
Ficus sp.: Philippines.

Fraxinus excelsior: Denmark.
Larix sp.: Netherlands.
L. decidua: Germany.
Morus alba: Japan.
Nothopanax fruticosus: Philippines.
Picea abies: Denmark, Germany.
P. glauca: Denmark.
Pinus mugo: Denmark.
P. nigra: Denmark.
Salix purpurea var. *pendula*: Czechoslovakia.

Helicobasidium tanakae Miyabe (xxx) root rot

Forms irregular, large, thick, velvety-brown fungus felts on trunks of many tree species. Distributed in Japan, Formosa, and China.

Broussonetia kazinoki: Japan.
Firmiana platanifolia: Japan.
Juglans sp.: Japan.
Morus sp.: China, Japan.
M. alba: Formosa.
Paulownia tomentosa: Formosa, Japan.
Pittosporum undulatum: Japan.
Quercus dentata: Japan.
Q. glandulifera: Japan.
Salix sp.
Zanthoxylum sp.: Japan.

Helicoceras celtidis (Biv.) Linder (xxx) dark mildew

Forms brown tomentose patches on the lower surface of leaves of *Celtis*. Distributed in the United States, Europe, Algeria, and Palestine.

Celtis australis: Algeria, Italy, Palestine.
C. tournefortii: Palestine.

Helminthosporium halodes Drechs. var. *elaeicola* Kovachich (xxx) leaf spot

Causes brown leaf spots on leaves of *Elaeis* killing large leaf areas when severe. Known in the Congo.

Elaeis guineensis: Congo.

Helminthosporium heveae Petch (xxx) leaf spot

Causes the "bird's eye" leaf spot of *Hevea* especially in young nursery plants, but also spreads to older ones and causes defoliation. Distributed in Mexico, Central America, Brazil, Congo, French Equatorial Africa, Ivory Coast, Tropical Asia, East Indies, and the Philippines.

Hevea brasiliensis: Andaman Islands, Brazil, Ceylon, Congo, Java, French Equatorial Africa, India, Indochina, Ivory Coast, Malaya, Mexico, Nicaragua, Philippines, Sumatra.

Hemileia canthii Berk. & Br. (xxx) **rust**

Forms powdery yellow rust spores in small groups of fungus pustules on the lower surface of leaves of a number of wild broad-leaved trees. Distributed in India, Pakistan, and Philippines.

Canthium gynochthodes: Philippines.

C. horridum: Philippines.

C. parviflorum: India.

C. pedunculare: Philippines.

C. rheedii: India.

Holarrhena antidysenterica: Pakistan.

Hemileia coffeicola Maubl. & Roger (xxx) **coffee rust**

Much like *Hemileia vastatrix* but the fruiting is more diffuse on the entire lower side of leaves of *Coffea arabica*. Known in the French Cameroons and Sao Thomé.

Coffea arabica: French Cameroons.

Hemileia holarrhenae H. & P. Syd. (xxx) **rust**

Forms rust pustules, minute, densely grouped, yellow, and pulverulent on leaves of *Holarrhena* in India and Pakistan.

Holarrhena antidysenterica: India, Pakistan.

Hemileia scholzii (P. Henn.) Syd. (xxx) **rust**

Forms powdery, yellow rust pustules on leaves of *Clerodendrum*. Distributed in the Gold Coast, Congo, and Mauritius.

Clerodendrum buchholzii: Gold Coast.

C. paniculatum: Mauritius.

Hemileia thomasi Thirum. & Naras. (xxx) **rust**

Forms rust pustules on leaves of *Randia* in India.

Randia uliginosa: India.

Hemileia vastatrix Berk. & Br. (xxx) **coffee rust**

Forms golden, powdery rust pustules on leaves of *Coffea* throughout the Old World tropical countries where coffee is grown. The damage was tremendous at first as the trees were killed or injured so extensively that growing of coffee was given up in a number of countries and became unprofitable in others. Rusted leaves die and fall prematurely, plants of all ages being killed in a few years. It is not known in the Americas.

Coffea arabica: China, Congo, Egyptian Sudan, Formosa, India, Indochina, Java, Madagascar, Moluccas, New Caledonia, Pakistan, Philippines, Tanganyika, Uganda.

C. arabica var. *mokka*: Union of South Africa.

C. arabica var. *myrtifolia*: Congo.

C. canephora: French West Africa, Philippines.

C. canephora var. *robusta*: Egyptian Sudan, India, Java, Madagascar, Philippines, Tanganyika, Uganda.

C. congensis: Madagascar.

C. congensis var. *chalotii*: Uganda.

C. eugenioides: Kenya.

C. excelsa: Philippines, Tanganyika, Uganda.

C. liberica: French West Africa, India, Madagascar, Tanganyika, Uganda.

Hendersonia montana Vuill. (xx) **needle cast**

Associated with brown spotting of needles of *Pinus mugo* and resultant needlecast in France.

Pinus mugo: France.

Hendersonia sorbi Moesz (xx) **leaf spot**

Associated with brown spot of living leaves of *Sorbus*.

Sorbus aucuparia: Latvia.

Hericium coralloides (Fr.) Pers. (xx) **heart rot**

A wound parasite entering large open wounds on hardwood trees. A large, white, hydnum with pendant teeth, a single stem branching into sterile primary branches and fertile secondary branches. Distributed widely in North America, Europe, and Siberia.

Sorbus aucuparia: Norway.

Hericium erinaceus (Fr.) Pers. (xx) **heart rot**

The conk usually is single with a single stem, white to yellowish, pendulous, spatulate or epaulet-shape, 5 to 30 cm. across, with pendant spines, white, 3 to 6 cm. long, straight, simple, crowded. It grows on trunks of wounded living hardwoods. Distributed generally in North America, southward into Mexico and in Europe, Siberia, India, and Japan.

Alnus sp.: Great Britain.

Carpinus sp.: Great Britain.

Castanopsis cuspidata: Japan.

Fagus sylvatica: Germany.

Juglans sp.: France.

Quercus sp.: Denmark, Great Britain.

Q. mongolica: Siberia.

Herpotrichia boldoae Speg. (xxx) **felt blight**

Forms olive, cottony fungus growth on branches of *Peumus* in Chile.

Peumus boldus: Chile (Talcahuano).

Herpotrichia nigra Hartig (x) **conifer brown felt blight**

Forms dark brown irregular felty growths on lower branches and on small coniferous trees, under snow lying late in the spring. It kills the needles and twigs pressed down by melting snow in a saturated atmosphere. European nurseries at high elevations have had to be abandoned in some localities. This blight probably occurs wherever conifers grow near timberline, and is definitely reported in the mountains of eastern and western North America, in higher parts of Europe, and in Siberia.

Abies sibirica: Siberia.

Juniperus chinensis f. *japonica*: Poland, Sweden, Switzerland.

J. communis: Germany, Norway, Poland.

J. communis var. *sacatilis*: Germany.

Picea abies: Norway, Denmark, Germany, Poland, Switzerland.

P. engelmannii: Norway.

- P. omorika*: Balkans.
Pinus cembra: Switzerland.
P. mugo: Poland, Germany, Switzerland.
P. sylvestris: Norway.

Hexagonia gunnii Berk. (xx) trunk rot

A poroid wound parasite with hexagonal pores on living broad-leaved trees. Distributed in New South Wales and South Australia.

Grevillea robusta: Australia, New South Wales.

Hexagonia sulcata Berk. (xx) trunk rot

A poroid parasite with hexagonal pores in large open wounds on trunks of broad-leaved trees. Known in India and the Philippines.

Boswellia serrata: India.

Shorea robusta: India.

Hexagonia tenuis Fr. (xx) trunk rot

A poroid parasite with hexagonal pores in large open wounds on trunks of broad-leaved trees in tropical regions. Distributed in Brazil, Venezuela, and New South Wales.

Grevillea robusta: Australia, New South Wales.

Hyalopsora fir-fern rust

There are about 70 species of these rusts in the three genera *Hyalopsora*, *Milesia*, and *Uredinopsis*, all with one stage of their life cycle so far as known, on needles of *Abies* and an alternate one on the fronds of various ferns. Many species cannot be distinguished from each other in the fir stage, but the fern stages show differences by which they can be identified. A considerable number of the fern rusts have not been connected with their fir stages. They occur practically throughout the range of *Abies*. Damage caused is not important.

Hyalopsora aculeata Kamei (xxx) rust

See general description under *Hyalopsora*. Forms tubular rust fruiting bodies on needles of *Abies sachalinensis* in spring and alternate rust pustules on leaves of *Blechnum* in Japan.

Abies sachalinensis: Japan.

Hyalopsora aspidiotus Magn. (xxx) rust

See general description under *Hyalopsora*. Forms tubular rust bodies on needles of *Abies* and the alternate stage on leaves of *Dryopteris*. Distributed in North America, Europe, Kamchatka, and Japan.

Abies alba: Scotland.

Hydnum cirrhatum Fr. (xx) trunk rot

A fungus with pendant spines, 5 to 10 cm. long, white, light yellowish to rufescent, hemispherical, with sterile fibers or spines above; spines cream color, 10 to 15 mm. long. On trunks of hardwoods and conifers. Distributed in North America and Europe.

Abies sp.: Great Britain.

Betula sp.: Great Britain.

Fagus sylvatica: Germany.

Quercus sp.: Great Britain.

Hydnum obrutans Burt (xx) **heart rot**

Conk large, resupinate, effused, white, up to 2.5 cm. thick by fusion of older spines; teeth white, cylindric, free portion 1 to 2 mm. long; 3 to 4 teeth per mm. Causing heart rot of living trunks of *Quercus*.
Quercus sp.: Java.

Hymenochaete mougeoti (Fr.) Cke. (xx) **butt rot**

Forms a crustlike, dark, blood-red fungus fruiting body on numerous broad-leaved and coniferous trees. The hymenium is cracked, uneven, and covered with pointed bristles. Distributed in Europe, Siberia, India, Ceylon, Indonesia, and Australia.

Acer sp.: Australia.

Agathis australis: Australia.

Araucaria cunninghamii: Australia.

Cupressus lusitanica: Australia.

Hymenochaete rubiginosa (Fr.) Lév. (xxx) **white pocket rot**

Conk 3 to 15 cm. across, effused, reflexed, brownish rust color with ochraceous tawny margin, nearly or entirely resupinate, concentrically sulcate, velvety, becoming smooth and date brown. On broad-leaved trees causing a white pocket rot of heartwood. Distributed in North and South America, Europe, South Africa, Siberia, India, Indonesia, Bonin Islands, Borneo, Australia, and Tasmania.

Quercus sp.: France, Great Britain, India.

Shorea robusta: India.

Hypoderma desmazierii Duby (xxx) **pine needle cast**

Needle casts of cedars, firs, larches, pines, and spruces are widely and generally distributed in North America, Europe, and Asia. The fungi causing them are numerous and resemble each other superficially in forming black, swollen spots or streaks mostly on the outer surfaces of the needles.

Hypoderma desmazierii spore cases are in a continuous row on the outer surface of the needles of *Pinus*. Each perithecium is a black, elliptical, swollen mass about $1\frac{1}{2}$ times as long as wide with a slit through which the spores escape; it is scarcely half the width of the affected needle. Affected needles turn red to brown, finally gray, and usually fall soon after. Usually only one or two in a leaf bundle are diseased. Young seedlings are injured most, many being killed. The disease is known practically wherever pines grow in North America and Europe.

Pinus cembra: Poland.

P. griffithii: France, Germany, Ireland.

P. parviflora: Russia.

P. peuce: Yugoslavia.

P. sylvestris: Germany.

Hypoderma mexicanum Wolf (xxx) **needle cast**

See *Hypoderma desmazierii* for general appearance of this pathogen. Forms small shiny-black fungus pustules on discolored lesions on needles of *Pinus*. Known in Mexico.

Pinus leiophylla: Mexico.

Hypoderma robustum Tub. (xxx) **fir needle cast**

See needle cast under *Hypoderma desmazierii*. In Oregon this causes the most destructive needle disease of *Abies*. It apparently is limited to North America but probably was carried to Germany in infected needles.

Abies concolor: Germany.

Hypodermella conjuncta Darker (xx) **needle cast**

See needle cast under *Hypoderma desmazierii*. Known on *Pinus sylvestris* in Scotland.

Pinus sylvestris: Scotland.

Hypodermella hiratsukae Darker (xxx) **leaf cast**

See leaf cast under *Hypoderma desmazierii*. Forms a row of elliptical, shiny, black, fungus spore cases on infected needles of *Pinus* in Japan.

Pinus pumila: Japan.

Hypodermella laricis Tub. (xxx) **larch leaf cast**

See leaf cast under *Hypoderma desmazierii*. Forms a linear series of short elliptical black fungus pustules on larch needles. Diseased needles turn yellow and die, remaining on their spur shoots over winter and spreading infection from the lower branches upward in the developing new needles. Extensive outbreaks have occurred in Idaho and in Europe. The spur shoots are killed making the disease a serious menace. Distributed in North America, Europe, and Siberia.

Larix decidua: Austria, Germany, Switzerland.

L. gmelinii: Siberia (Yakutsk).

L. sibirica: Siberia.

Hypodermella lirelliformis Darker (xxx) **leaf cast**

See leaf cast under *Hypoderma desmazierii*. Forms brownish-black fungus spore cases on straw-colored needles of *Abies* in Austria and Germany.

Abies alba: Austria.

Hypodermella nervisequia (Fr.) Lager. (xxx) **fir leaf cast**

See leaf cast under *Hypoderma desmazierii*. Forms brownish-black fungus spore cases along the middle of infected needles of *Abies*. Distributed in Europe, China, and Japan; not in North America.

Abies alba: Czechoslovakia, Denmark, France, Germany, Hungary, Italy, Poland, Sweden, Switzerland.

A. cephalonica: Germany.

A. fabri: China.

A. mariesii: Japan.

A. pinsapo: Germany.

Hypodermella sulcigena (Rostr.) Tub. (xxx) leaf cast

See leaf cast under *Hypoderma desmazierii*. Forms elliptical to elongate fungus spore cases on discolored areas, often on living green needles of *Pinus*. This is a destructive European parasite. Distributed in Scotland, Denmark, Norway, Sweden, Finland, Russia, and Central Europe.

Pinus sp.: Finland, Russia.

P. mugo: Czechoslovakia, Denmark, Germany, Norway, Scotland.

P. mugo var. *rostrata*: Norway.

P. nigra: Norway.

P. sylvestris: Czechoslovakia, Denmark, England, Finland, Germany, Norway, Scotland, Sweden.

Hyponectria buxi (Desm.) Sacc. (x) box blight

Associated with blight of *Buxus* in the United States and Europe.

Buxus sp.: Sweden.

B. sempervirens: British Isles, Portugal.

Hypoxylon fragiforme (Fr.) Kickx (xx) beech red heart

Forms pulvinate to hemispheric fungus bodies on dead bark of cankered areas on various hardwood trees. Associated with red heart of *Fagus* in Macedonia. Distributed in North America, Europe, and India.

Fagus moesiaca: Yugoslavia (Macedonia).

Hypoxylon mediterraneum (de N.) J. H. Miller (xx) canker

See *Hypoxylon fragiforme* for general description. A wound parasite on numerous broad-leaved trees in the United States, Europe, and Morocco.

Castanea sativa: France.

Eucalyptus camaldulensis: Morocco.

E. gomphocephala: Morocco.

E. robusta: Morocco.

Fagus sylvatica: France.

Populus tremula: France.

Quercus faginea: Morocco.

Q. ilex: France, Morocco.

Q. suber: France, Morocco.

Hypoxylon sertatum Dur. & Mont. (xx) dieback

See *Hypoxylon fragiforme* for general description. A wound parasite of *Quercus* in Morocco and Algeria, and on *Eucalyptus* in Morocco.

Eucalyptus robusta: Morocco.

Quercus suber: Morocco, Algeria.

Hysterium thujopsidis Saw. (xxx) leaf cast

See *Hypoderma desmazierii* for general description. Associated with leaf cast of *Thujopsis* and *Cryptomeria* in Japan.

Cryptomeria japonica: Japan.

Thujopsis dolobrata: Japan.

Hysterographium fraxini (Fr.) de N. (xx) **canker**

Causes circular depressed spots in the bark of young stems and branches of hardwoods and conifers. The fungus forms small, black, oblong blisters with furrowed openings, scattered over the dead bark. The affected parts often die. A severe outbreak in an ash plantation, 2.5 to 3 meters tall, occurred in Denmark. The fungus is well known in North America and Europe. It is usually saprophytic but occasionally can become aggressively pathogenic.

Alnus viridis: Switzerland.

Betula sp.: Switzerland.

Fagus sylvatica: Switzerland.

Fraxinus excelsior: Denmark, Switzerland.

F. ornus: Switzerland.

Larix decidua: Switzerland.

Picea abies: Switzerland.

Quercus sp.: Switzerland.

Irene alchorneae F. L. Stevens & Tehon (xxx) **black mildew**

Forms diffuse, small, black mildew colonies on the upper surface of leaves in British Guiana.

Alchornea cordata: British Guiana.

Irene cubitorum F. L. Stevens & Tehon (xxx) **black mildew**

Forms fungus colonies 0.5 cm. or more in diameter on the leaves of *Dimorphandra* in British Guiana.

Dimorphandra latifolia: British Guiana.

Irene glabroides (F. L. Stevens) Toro (xxx) **black mildew**

Forms black mildew spots on leaves of *Nectandra* and other broad-leaves in British Guiana and Puerto Rico.

Nectandra sp.: British Guiana.

N. patens: Puerto Rico.

Simaba sp.: British Guiana.

Irene melastomacearum (Speg.) Toro (xxx) **black mildew**

Forms black mildew on surface of leaves of *Miconia* in Puerto Rico.

Miconia impetiolearis: Puerto Rico.

M. laevigata: Puerto Rico.

M. prasina: Puerto Rico.

M. racemosa: Puerto Rico.

Irenina arachnoidea (Speg.) F. L. Stevens (xxx) **black mildew**

Forms small, black mildew spots on leaves of *Crescentia* in Venezuela and Brazil.

Crescentia cujete: Venezuela.

Irenina castanopsidis Hansf. (xxx) **black mildew**

Forms black mildew areas on leaves in China.

Castanopsis tibetana: China.

Irenina glabra (Berk. & Curt.) F. L. Stevens (xxx) **black mildew**

Forms black mildew on leaves of *Randia*. Distributed in Cuba, Colombia, and Brazil.

Randia sp.: Colombia.

Irenina quercina Hansf. (xxx) **black mildew**

Forms black mildew spots on leaves in China.

Quercus sp.: China.

Irenina wrightii (Berk. & Curt.) F. L. Stevens (xxx) **black mildew**

Forms black mildew on leaves of *Cupania*. Distributed in Cuba and Colombia.

Cupania sp.: Colombia.

Irenopsis guianensis (F. L. Stevens & Dow.) F. L. Stevens (xxx) **black mildew**

Forms black mildew on leaves of *Theobroma* in Venezuela.

Theobroma cacao: Venezuela.

Irpex hirsutus Kalchbr. (xx) **trunk rot**

Fruiting body resupinate with shallow tubes becoming torn or toothed, yellowish, never white. Rare. A wound parasite on hardwood trees occasionally causing a trunk rot. Reported from Iowa; also in Hungary and Siberia.

Betula pendula: Siberia.

Irpex obliquus Fr. (xx) **trunk rot**

Fruiting body white, yellowish, or wood color, effused, resupinate, teeth at first porelike then torn or splitting. Usually on dead wood, but is a wound parasite in living hardwood trees. Distributed in North America, Europe, Siberia, and Australia.

Eucalyptus regnans: Australia, (Victoria).

Quercus sp.: Great Britain.

Irpex tabacinoides Yasuda (xx) **wood rot**

Forms sessile, effuse-reflexed, yellowish-brown fruiting body with overlapping teeth, on branches of *Lithocarpus* in Japan.

Lithocarpus cuspidata: Japan.

Irpex zonatus Berk. (xx) **white spongy rot**

A wound parasite of *Olearia*. Pileus, corky, rigid, zonate, margin lobate, teeth compressed basally. Causes a white spongy rot. Known in Ceylon and Australia.

Olearia argophylla: Australia (Victoria).

Kernella lauricola (Thurum.) Thurum. (xxx) **rust**

Forms hypertrophied cushions on the lower surface of leaves, and rarely on tender shoots and petioles of *Litsea* and *Phoebe*. The cushions develop cupulate sori within which, 10 to 15 mm. long, brownish-black spore columns develop. Distributed in India.

Litsea sp.: India.

Phoebe paniculata: India.

P. wightii: India.

Kuehneola moricola P. Henn. (xxx) rust

Forms rust pustules on leaves.

Morus alba: China.

Lagenulopsis bispora (Fitzp.) Fitzp. (xxx) tar spot

Forms small black stromata on the lower leaf surface of *Podocarpus*. Known only in the type locality in Central and East Africa.

Podocarpus milanjanus: Uganda.

Lateropeltis bambusarum Shanor (xx) leaf spot

Associated with the imperfect fungus *Ciliciochorella bambusarum* Shanor on dark, oval lesions on leaves of *Arthrostylidium*. Known in Mexico, Costa Rica, El Salvador, and Canal Zone.

Arthrostylidium racemiflorum: El Salvador, Canal Zone.

Lembosia melastomatum Mont. (xxx) black mildew

Forms black mildew on leaves of *Miconia*. Known in Puerto Rico, Brazil, and Peru.

Miconia sp.: Puerto Rico.

Lembosia miconiicola Arn. (xxx) black mildew

Forms black spots 2 to 3 mm. across on the upper surface of leaves of *Miconia*. Known in Peru and Venezuela.

Miconia stenostachya: Venezuela.

Lembosia tenella Lév. (xxx) black mildew

Forms black mildew on leaves of *Coccoloba* in Florida and Puerto Rico.

Coccoloba uvifera: Puerto Rico.

Lentinus kaufmanii A. H. Sm. (xx) brown pocket heart rot

Causes a serious brown pocket rot of heartwood in living trees of *Picea*. The fungus is an agaric with vertical gills beneath the pileus. It fruits only on logs and trees broken so as to expose the brown rot pockets to the open air. Distributed along the Pacific Coast in North America from California to the Queen Charlotte Islands in British Columbia; also in Japan.

Picea jezoensis: Japan.

Lentinus tigrinus Fr. (xx) white trunk rot

A small agaric with central or eccentric stem, fleshy to leathery texture, whitish with dark scales. A wound parasite on living hardwood trees. Fire scars are especially apt to become infected and lead to breaking-over of the entire tree. Distributed in North America, Europe, Formosa, India, Japan, and Australia.

Salix sp.: Yugoslavia.

Lenzites betulina Fr. (xx) white stringy rot

A small conk, sessile, semicircular, whitish, rigid, corky, tomentose; gills white, straight, simple. A wound parasite of hardwoods and rarely of conifers causing a white, stringy rot. Distributed in North America southward to Panama; also in Europe, Asia, and South Africa.

Celtis kraussiana: Union of South Africa.

Leptosphaeria coniothyrium (Fckl.) Sacc. (xx) **willow canker**

Forms erumpent subepidermal perithecia. Associated with canker of basket willow rods. Probably a wound parasite. Distributed in North America and Europe.

Salix sp.: Great Britain.

Leptosphaeria heveae Saccas (xxx) **leaf spot**

Occurs on isolated, irregularly shaped leaf spots, grayish with wide purple-brown margins. Known in French Equatorial Africa.

Hevea brasiliensis: French Equatorial Africa.

Leptosphaeria sorbi Jacz. (xxx) **leaf spot**

Perithecia form on gray leaf spots on *Sorbus* in Siberia.

Sorbus sp.: Siberia.

Leptosphaerulina japonica Kasai (xxx) **needle blight**

Occurs on blighted needles of old trees of *Cryptomeria* in Japan. A serious disease.

Cryptomeria japonica: Japan.

Leveillula taurica (Lév.) Arn. (xxx) **powdery mildew**

Causes powdery mildew of broad-leaved trees. Distributed in Texas, Mexico, Europe, Asia, and North Africa.

Acacia seyal: Anglo-Egyptian Sudan.

Laburnum anagyroides: Iran (Karadj).

Linospora populina (Fr.) Schroet. (xxx) **leaf spot**

Subepidermal perithecia form on spots on leaves of *Populus*. Distributed in Alaska, northern Europe, Siberia, and India.

Populus tremula: Russia (Kazan), Siberia.

Loculistroma bambusae Patterson & Charles (xxx) **bamboo witches'-broom**

Forms sessile blackish fruiting bodies at the stem nodes. Shortening of internodes of diseased branches causes a witches'-broom effect. Known only on *Phyllostachys* in China.

Phyllostachys sp.: China.

Lophodermium acacicolum Tehon (xxx) **black spot**

Forms small, dull black, erumpent masses, each opening with an elongate slit, and scattered over oval, yellowish spots on leaves of *Acacia* in Hawaii.

Acacia koa: Hawaii (Wahiawa, Oahu).

Lophodermium aleuritidis Rehm (xxx) **black spot**

Forms small, shiny-black fungus fruiting bodies with slit openings on large, light yellowish spots on leaves of *Aleurites* and *Planchonia* in the Philippines.

Aleurites moluccana: Philippines.

Planchonia spectabilis: Philippines.

Lophodermium cedrinum Maire (xxx) **tar speck**

Occurs as small, shiny-black, erumpent masses with slit openings, scattered on needles of *Cedrus* in Algeria.

Cedrus atlantica: Algeria, French Mauretania.

Lophodermium chamaecyparisi Shirai & Hara (xxx) **needle cast**

Occurs as scattered, black, raised, elliptical bodies on needles in Japan.

Chamaecyparis obtusa: Japan.

Lophodermium hysterioides (Fr.) Sacc. (xxx) **leaf blight**

Associated with light-colored spots on leaves of *Amelanchier*, *Sorbus*, and *Crataegus*. Known in North America and Europe.

Amelanchier ovalis: Austria, Germany.

Crataegus intricata: England, Germany.

C. monogyna: France.

Sorbus aucuparia: Norway.

Lophodermium juniperinum (Fr.) de N. (x) **leaf cast**

Forms shiny-black, small fruiting bodies on needles of *Juniperus*. Distributed in temperate North America and Europe.

Juniperus communis: Austria, Belgium, Czechoslovakia, Denmark, England, France, Germany, Italy, Norway, Scotland, Switzerland.

J. oxycedrus: Austria.

J. sabina: Denmark, France, Norway, Poland, Switzerland.

J. squamata: Denmark.

Lophodermium laricinum Duby (xxx) **larch leaf cast**

Forms scattered, elliptical, shiny-black, erumpent fruiting bodies on needles of *Larix*. Distributed in eastern Canada, central Europe, and Japan.

Larix sp.: Japan.

L. decidua: Austria, Germany, Italy, Switzerland.

Lophodermium macrosporum (Hartig) Rehm (xxx) **spruce leaf cast**

Forms shiny-black, elliptical to elongate, fruiting bodies on needles of *Picea*. Distributed in Europe.

Picea sp.: Belgium.

P. abies: Czechoslovakia, Denmark, Estonia, France, Germany, Norway, Poland, Romania, Russia, Scotland, Sweden, Switzerland.

P. omorika: Balkans.

Lophodermium nitens Darter (xxx) **pine needle cast**

Fruiting bodies subcuticular, shiny-black, on outer faces of needles, single, in pairs, or in small colonies. Limited to *Pinus*. Distributed in North America and Europe.

Pinus cembra: Austria, France.

P. halepensis: Austria, France.

P. mugo: Austria, Germany.

Lophodermium piceae (Fekl.) Hoehn. (xxx) **needle cast**

Forms shiny-black, scattered elliptical fruiting bodies on the needles of *Abies* and *Picea*. Said to be next to *Fomes annosus* in importance as a disease of spruce in Denmark. Distributed in eastern and western North America, Europe, and India.

Abies alba: Denmark, Germany.

A. pinsapo: Spain.

Picea abies: India, Denmark, Germany, Norway, Romania.

P. smithiana: Denmark.

Lophodermium pinastri (Fr.) Chev. (xxx) **pine needle cast**

Fruiting bodies scattered, amphigenous, elliptical, black, 0.90 to 1.50 x 0.32 to 0.70 mm., subepidermal on needles of *Pinus*. Distributed widely in North America, West Indies, Europe, India, Japan, and Siberia.

Pinus sp.: Estonia.

P. cembra: Denmark, Germany, Norway, Siberia, Switzerland.

P. cembra var. *sibirica*: Siberia.

P. densiflora: Japan.

P. griffithii: India.

P. halepensis: Greece.

P. koraiensis: Yugoslavia.

P. mugo: Czechoslovakia, Denmark, Germany, Norway.

P. mugo var. *rostrata*: Norway, Russia.

P. mugo var. *rotundata*: Denmark.

P. nigra: Austria, Czechoslovakia, Denmark, France, Germany, Italy, Hungary, Norway, Portugal, Spain.

P. nigra var. *cebennensis*: Denmark.

P. nigra var. *poiretiana*: Denmark, Germany.

P. occidentalis: Dominican Republic.

P. pinaster: Denmark, France, Portugal, Spain.

P. roxburghii: India.

P. sylvestris: Belgium, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Latvia, Norway, Poland, Russia, Sweden, Switzerland.

P. thunbergii: Japan.

Lophodermium punctiforme (Fr.) Fekl. (xxx) **black spot**

Forms small, shiny-black, erumpent, elliptical to nearly linear fungus fruiting bodies seated on yellowish spots on petioles, veins, and blades of leaves of broad-leaved trees. Distributed in the United States, Europe, and Siberia.

Castanea sativa: Austria, Czechoslovakia.

Quercus mongolica: Siberia.

Q. petraea: Czechoslovakia, Denmark.

Q. pubescens: Austria.

Q. robur: Denmark, Germany.

Q. rubra: France, Germany, Czechoslovakia.

Sorbus aucuparia: Norway.

Lophodermium tumidum (Fr.) Rehm (xx) **leaf spot**

Associated with straw-yellow spots on leaves of *Sorbus* in New Brunswick, Europe, and Siberia.

Sorbus aucuparia: Austria, Siberia, Switzerland.

Lophodermium versicolor (Fr.) Rehm (xxx) **tar speck**

Occurs as small, shiny-black, erumpent masses on light yellowish spots on leaves of *Salix*. Known in Colorado, Pennsylvania, and Europe.

Salix formosa: Europe.

S. glauca: Europe.

S. hastata: Europe.

S. herbacea: Europe.

S. retusa: Europe, Germany.

Macrophoma pinsaponis Neger (x) **fir needle blight**

Forms pimplelike pycnidia exuding numerous conidia. Associated with dying of needles of *Abies* in Spain. Possibly poor site conditions lead to attacks by the fungus.

Abies pinsapo: Spain.

Macrophoma salicis Dearn. & Barth. (xx) **leaf cast**

Forms pimplelike pycnidia on diseased leaves and causes reddish-brown discoloration of tips of leaves of *Salix* and premature shedding of affected leaves in New Zealand.

Salix fragilis: New Zealand.

Macrophoma shoreae Bagchee (xx) **branch canker**

Hail injuries apparently give entry to this wound parasite, resulting in cankers with numerous witches'-brooms. Inoculations in wounds were successful and the fungus was recovered from artificially wounded twigs. Known only in India.

Shorea robusta: India.

Macrophoma sinensis Pass. (xx) **twig blight**

Pimplelike pycnidia are associated with leaf spot and twig blight of *Cunninghamia*. Known in Italy and Mauritius.

Cunninghamia lanceolata: Mauritius.

Macrophoma sugi Hara (xxx) **needle blight**

Pimplelike pycnidia form on blighted needles of *Cryptomeria* in Japan. Inoculations in wounds succeeded; also similar ones on unwounded very young needles. This is one of numerous disease fungi which inflict heavy losses in Japanese nurseries.

Cryptomeria japonica: Japan.

Macrophomina phaseoli (Maubl.) Ashby (xx) **rhizoctonia root rot**

Causes root and stem rot of many broad-leaved trees in the Tropics, a rot which has been known under several different names according to its varied growth stages. The most common form is a sterile *Rhizoctonia*. Distributed in Africa and Asia.

Acacia decurrens: Ceylon.

A. elata: Ceylon.

A. melanoxylon: Kenya.

Albizia falcata: Sumatra.

A. moluccana: Ceylon, Uganda.

A. stipulata: Uganda.
Amherstia nobilis: Ceylon.
Areca cathecu: Ceylon.
Bixa orellana: Uganda.
Borassus flabellifer: Ceylon.
Casuarina equisetifolia: Uganda.
Cocos nucifera: Ceylon.
Coffea arabica: Kenya, Tanganyika, Uganda.
C. canephora var. *robusta*: Ceylon, Uganda.
Cupressus lusitanica var. *benthamii*: Uganda.
Erythrina indica: Uganda.
E. lithosperma: Ceylon.
E. mitis: Uganda.
E. velutina: Uganda.
Eucalyptus globulus: Uganda.
E. robusta: Ceylon.
Garcinia mangostana: Ceylon.
Grevillea robusta: Uganda, Ceylon.
Hevea brasiliensis: Ceylon, Java, India, Malaya, Uganda.
Morus alba: India.
Ochroma pyramidale: Ceylon.
Persea americana: Ceylon.
Theobroma cacao: Ceylon, Uganda.

Mainsia pterocarpi Thirum. (xxx) rust

Forms powdery, yellow rust pustules on leaves of *Pterocarpus* intermixed with minute, waxy telial crusts. Causes severe defoliation. Known in India and Pakistan.

Pterocarpus marsupium: Pakistan, India.

Marasmius equicrinis F. Muell. (xx) white thread blight

Forms white strands of fungus tissue on branches, twigs, and leaves of many broad-leaved trees. These often form pads or cushions of tissue at the base of a petiole or branch. Dead leaves hang by white threads. Distributed in the West Indies, Brazil, Scotland, Gold Coast, Australia, East Indies, New Hebrides, India, and the Philippines.

Dalbergia sissoo: India.

Heritiera minor: India.

Hevea brasiliensis: East Indies, Brazil.

Theobroma cacao: Gold Coast, New Hebrides, West Indies.

Marasmius perniciosus Stahel (xxx) cacao witches'-broom

Causes witches'-brooms on *Theobroma* in tropical regions of the New World. Causes heavy damage and is believed to be native to South America. Distributed in Grenada, northern South America southward to Bolivia, and in Java. It is noted that Singer has transferred this species to *Crinipellis*.

Theobroma bicolor: Java, Surinam.

T. cacao: Brazil, British Guiana, Grenada, Java, Peru, Surinam, Trinidad, Venezuela.

T. grandiflora: Brazil.

T. pentagona: Surinam.

Marasmius scandens Mass. (xxx) **white thread blight**

Causes white thread blight on leaves of *Cola* and *Theobroma*. Known in the Gold Coast and Sierra Leone.

Cola acuminata: Gold Coast, Sierra Leone.

C. vera: Sierra Leone.

Funtumia africana: Sierra Leone.

Theobroma cacao: Gold Coast, Sierra Leone.

Maravalia pterocarpi (Thiurum.) Thiurum. (xxx) **rust**

Forms rust pustules on leaves and stems of *Dalbergia* and *Pterocarpus* in India.

Dalbergia paniculata: India.

Pterocarpus marsupium: India.

Marssonina acerina (West.) Bres. (xxx) **anthracnose**

Forms small, irregular, conidial pustules on maple leaf spots, scattered thickly on the leaf, brown with a yellow border. Distributed in North America and Europe.

Acer campestre: Denmark.

A. orientale: Denmark.

A. pseudoplatanus: Denmark.

A. rufinerve: Denmark.

Marssonina betulae (Lib.) Magn. (xx) **birch anthracnose**

Occurs on anthracnose leaf spots as olive to fuscous-black pustules on the upper side of dying *Betula* leaves. Distributed in Europe.

Betula sp.: Germany, Great Britain, Norway.

B. pendula: Denmark, Great Britain, Norway, Russia.

Marssonina castagnei (Desm. & Mont.) Magn. (xxx) **poplar leaf spot**

Forms small subcuticular pycnidia associated with round, brown spots on leaves of *Populus*. Distributed in North America and Europe.

Populus × canadensis: Italy.

P. × canadensis var. *serotina*: Great Britain.

P. deltoides: Netherlands.

P. nigra: Great Britain.

P. nigra var. *italica*: Great Britain.

P. tremula: Norway.

Marssonina decolorans Kab. & Bub. (xxx) **maple leaf spot**

Associated with leaf spots of *Acer* in Europe.

Acer campestre: Europe.

A. negundo: Czechoslovakia, Denmark, Great Britain.

A. pseudoplatanus: Europe.

Marssonina kriegieriana (Bres.) Magn. (xxx) **willow leaf spot**

Occurs on minute black spots on leaves of *Salix* as small subcuticular pustules exuding white conidia. Known in North America, Europe, Egypt, and Japan.

Salix cinerea: Great Britain.

S. × rubra: Japan.

S. tetrasperma: Egypt.

Marssonina martini (Sacc. & Ell.) Magn. (xxx) **oak leaf spot**

Occurs on leaf spots of *Quercus*. Distributed in North America and Europe; also China.

Quercus glandulifera: China.

Marssonina populi Magn. (xxx) **poplar leaf rust**

Forms pustules with white spore tendrils on spots, rounded, brown, usually with black borders, on leaves of *Populus*. Distributed in North America and Europe.

Populus sp.: Germany.

P. alba: Great Britain, Norway.

P. ×canescens: Great Britain.

P. deltoïdes: Denmark.

P. laurifolia: Norway.

P. nigra: Great Britain, Norway.

Marssonina salicicola (Bres.) P. Magn. (xxx) **willow leaf spot**

Forms white pustules associated with indefinite spots on leaves of *Salix*. Distributed in Great Britain, Argentina, and New Zealand.

Salix alba var. *calva*: Argentina.

S. babylonica: Argentina, New Zealand.

S. fragilis: New Zealand.

S. purpurea: Great Britain.

Marssonina truncatula (Sacc.) Magn. (xxx) **maple leaf spot**

Occurs on brown to ochraceous spots on leaves of *Acer*. Distributed in Europe.

Acer campestre: Germany, Great Britain.

A. negundo: Germany, Denmark.

A. saccharinum: Denmark.

Masseëlla breyniae Thirum. (xxx) **rust**

Forms brown rust pustules on leaves of *Breynia* in India.

Breynia rhamnoides: India.

Masseëlla fluggeae Syd. (xxx) **rust**

Forms dark rust pustules on leaves of *Fluggea*. Known in Burma and the Philippines.

Fluggea microcarpa: Burma.

F. virosa: Philippines.

Mauginiella scaetiae Cav. (xxx) **date palm blight**

Causes blight of inflorescences of *Phoenix dactylifera* destroying the entire fruit crop. Known in Tunis, Libya, and Iraq.

Phoenix dactylifera: Iraq, Libya, Tunis.

Mehtamyces stereospermi (Mund.) Mund. & Thirum. (xxx) **rust**

Forms sparse pale yellowish-brown rust pustules followed by black ones on leaves of *Stereospermum*. Known in India.

Stereospermum suaveolens: India.

Melampsora abieti-capraearum Tub. (xxx) **fir-willow rust**

Forms yellow, pulverulent rust pustules on new needles of *Abies* followed by a yellow powdery stage on leaves of *Salix*; and still later on *Salix* by brown, subepidermal, crusty mats of closely packed overwintering spores. Distributed in southern Canada, the United States, Mexico, Central America, South America, and western Europe.

Abies alba: Denmark, Germany, Norway, Switzerland.

Salix caprea: Denmark, Switzerland, Germany.

S. cinerea: Switzerland.

S. humboldtiana: El Salvador, Argentina, Guatemala, Peru.

S. purpurea: Switzerland.

S. taxifolia: Guatemala.

S. viminalis: Switzerland.

Melampsora albertensis Arth. (xxx) **Douglas-fir rust**

Forms tubules, up to 1 mm. long, in two rows one on either side of the midrib of needles of *Pseudotsuga*. These contain powdery yellow spores which infect leaves of *Populus*. The early stage of the rust on *Populus* is in powdery, yellow pustules on the lower leaf surface. Later, waxy orange-brown mats form under the epidermis, where the parasite overwinters to infect young needles of Douglas-fir the next spring. Distributed from Colorado and Wyoming to British Columbia and Oregon; also in Lower California and Argentina.

Populus × *canadensis*: Argentina.

Melampsora allii-fragilis Kleb. (xxx) **willow rust**

Causes yellow spots up to 1.5 cm. across on both surfaces of leaves of *Salix* and the alternate herbaceous *Allium*. Distributed in Austria, Hungary, Germany, Switzerland, Bulgaria, Spain, and Russia.

Salix fragilis: Denmark, Germany, Great Britain, Hungary, Poland, Switzerland.

S. pentandra: Great Britain.

Melampsora allii-populina Kleb. (xxx) **poplar rust**

Similar to the preceding but with *Populus* instead of *Salix* as tree hosts. Distributed in Europe and Morocco.

Populus sp.: Greece, Netherlands.

P. balsamifera: Germany.

P. × canadensis: Germany, Italy.

P. nigra: Germany, Great Britain, Morocco, Switzerland.

Melampsora amygdalinae Kleb. (xxx) **willow rust**

Autoecious. Forms orange-yellow rust pustules on leaves and branches of *Salix*, followed by yellowish-brown ones in late summer. Known in Europe.

Salix amygdalina: Denmark, Finland, Germany, Great Britain, Hungary, Switzerland.

Melampsora arctica Rostr. (xxx) **willow-saxifrage rust**

Forms rust pustules on leaves of *Salix* with alternate stage on the herbaceous *Saxifraga*. Distributed in boreal regions: Alberta, Alaska, Mount Washington, Pikes Peak, Greenland, Guatemala, Novaya Zemlya, Europe, and Japan.

Salix arctica: Novaya Zemlya (Russian Island).

S. herbacea: Norway, Scotland, Sweden.

S. polaris: Norway, Novaya Zemlya.

S. reinii: Japan.

S. reptans: Novaya Zemlya.

S. reticulata: Norway, Italy, Scotland.

S. retusa: Italy.

S. rotundifolia: Novaya Zemlya.

S. taxifolia var. *microphylla*: Guatemala.

Melampsora capraearum (DC.) Thuem. (xxx)

larch-willow rust

Forms yellow rust pustules on leaves of *Salix* where the parasite overwinters. The overwintered spores infect newly formed needles of *Larix*. This rust can survive indefinitely from year to year on *Salix* without *Larix* anywhere near. Distributed in Europe, Siberia, China, and Japan.

Salix aurita: Austria, Germany.

S. caprea: Austria, Germany, Japan, Siberia.

S. cinerea: Austria.

S. phlomoides: Siberia.

S. repens: Austria.

S. repens var. *rosmarinifolia*: Austria.

S. reticulata: Austria.

S. wilsonii: China.

Melampsora chelidonii-pierotii T. Matsu. (xxx)

rust

Forms rust pustules on leaves of the herbaceous *Chelidonium* and *Corydalis* with an alternate stage on *Salix* in Japan.

Salix amygdalina var. *glaucophylla*: Japan.

S. pierotii: Japan.

Melampsora ciliata Barcl. (xxx)

rust

Forms abundant minute, bright-yellow rust pustules on leaves of *Populus* followed by brown, compact, palisade subepidermal overwintering mats. Known in India.

Populus ciliata: India.

Melampsora coleosporioides Diet. (xxx)

willow rust

Forms rust pustules, yellow to yellowish-brown on leaves of *Salix*, followed by brown, compact, subepidermal, small fungus mats. Distributed in Japan and China.

Salix babylonica: China, Japan.

S. ×heteromera: China.

S. matsudana: China.

S. mesneyi: China.

Melampsora epiphylla Diet. (xxx)

rust

Forms yellow to brown rust pustules on leaves of *Salix* in Japan.

Salix shikokiana: Japan.

Melampsora epitea Thuem. (xxx)**fir-willow rust**

The most common rust of *Salix* in North America, but uncommon in Europe. On *Salix* an early stage of the rust is pulverulent and orange colored. A later stage is reddish brown, subepidermal, and waxy in appearance. The fungus overwinters in this stage, infecting young *Abies* needles the next spring. Here it forms powdery, orange-colored pustules. These spores infect willow leaves, completing the life cycle of the pathogen. Distributed widely in North America from Alaska and Greenland southward into Mexico, Central America, and South America in Peru and Argentina; also in Europe from Spitzbergen and Novaya Zemlya southward to southern Europe, India, Kamchatka, and Japan.

Abies alba: Norway.

A. sibirica: Norway.

Salix acutifolia: Austria, Denmark, Germany (Brandenburg).

S. alba: Austria, Great Britain.

S. amygdalina: Norway.

S. arctica: Kamchatka.

S. atrocineria: Great Britain.

S. aurita: Great Britain, Norway.

S. babylonica: Japan.

S. caprea: Great Britain, Norway.

S. cuneata: Kamchatka.

S. daphnoides: Austria, India.

S. elaeagnos: Austria.

S. formosa: Norway.

S. fuscescens × *sachalinensis*: Kamchatka.

S. glauca: Norway.

S. glauca × *myrsinites*: Norway.

S. hastata: Norway.

S. herbacea: Great Britain, Norway.

S. hultenii: Kamchatka.

S. lanata: Norway.

S. lapponum: Norway.

S. macrolepis: Kamchatka.

S. × *mollissima*: Great Britain.

S. myrsinifolia: Austria, Great Britain, Norway.

S. myrsinites: Norway.

S. myrtilloides: Norway.

S. parallelinervis: Kamchatka.

S. parallelinervis × *sachalinensis*: Kamchatka.

S. phyllicifolia: Great Britain, Norway.

S. polaris: Norway.

S. pseudopolaris: Kamchatka.

S. purpurea: Austria, Great Britain, Norway.

S. repens: Great Britain.

S. reticulata: Great Britain, Norway.

S. reticulata var. *subrotunda*: Kamchatka.

S. rubra: Austria.

S. sachalinensis: Kamchatka.

S. × *smithiana*: Great Britain, Norway.

S. viminalis: Austria, Great Britain, Norway.

S. xerophila: Norway.

Melampsora evonymi-caprearum Kleb. (xxx) willow rust

Forms yellow to brown rust pustules on sunken yellow spots on leaves of *Salix* in Europe and Japan.

Salix atrocinerea: Great Britain.

S. caprea: Germany, Great Britain, Italy.

S. cinerea: Great Britain.

Melampsora evonymi-incanae O. Schneid. (xxx) willow rust

Forms rust pustules on leaves of *Euonymus* and the alternate stage on *Salix* in Switzerland.

Salix elaeagnos: Switzerland.

Melampsora humilis Diet. (xxx) willow rust

Forms yellow to brown rust pustules on *Salix* in Japan.

Salix integra: Japan.

S. purpurea: Japan.

Melampsora lapponum Lindf. (xxx) willow rust

Forms rust pustules on leaves of *Salix* with an alternate stage on the herbaceous *Viola epipsila*. Known in Norway and Sweden.

Salix lapponum: Norway.

Melampsora larici-capraearum Kleb. (xxx) larch-willow rust

Forms yellow rust pustules on leaves of *Larix* and *Salix*. Distributed in Europe, India, and Japan.

Larix decidua: Germany, Great Britain, Norway, Switzerland.

L. leptolepis: Great Britain, Scotland.

L. sibirica: Norway.

Salix atrocinerea: Great Britain.

S. aurita: Great Britain, Norway.

S. bakko: Japan.

S. caprea: France, Germany, Great Britain, Norway, Switzerland.

S. cinerea: Scotland.

S. daphnoides: India.

S. × smithiana: Norway.

S. tetrasperma: India.

Melampsora larici-epitea Kleb. (xxx) larch-willow rust

Forms rust pustules on leaves of *Larix* and *Salix*. Distributed in Europe, Siberia, India, China, Kashmir, Formosa, Ceylon, Japan, and Manchuria.

Larix decidua: Germany, Great Britain, Norway, Switzerland.

Salix aurita: Scotland, Switzerland.

S. caprea: Scotland, Poland.

S. cinerea: Scotland, Switzerland.

S. daphnoides: Germany, Switzerland.

S. delavayana: China.

S. hastata: India, Kashmir.

S. latifolia: Norway.

S. longiflora: China.

S. miyabeana: Japan.

- S. × mollissima*: Scotland.
S. myrsinifolia: Scotland.
S. oxycarpa: India, Kashmir.
S. psilostigma: China.
S. purpurea: Formosa, Scotland.
S. sachalinensis: Japan.
S. viminalis: Manchuria, Scotland, Switzerland.

Melampsora larici-pentandrae Kleb. (xxx) **larch-willow rust**

Forms yellow to brown rust pustules on leaves of *Larix* and *Salix*. Known in Europe, South Siberia, Kamchatka, and Uruguay.

- Larix decidua*: Great Britain, Norway, Scotland, Switzerland.
Salix pentandra: Great Britain, Norway, Scotland, Switzerland.
S. pentandra var. *pseudopentandra*: Kamchatka.

Melampsora larici-populina Kleb. (xxx) **larch-poplar rust**

Forms rust pustules on leaves of *Larix* and *Populus*. Distributed in Argentina, Colombia, Chile, Europe, China, Japan, and Kamchatka. The Argentine infection is probably due to hybrid poplar stock imported from Italy.

- Larix decidua*: Germany, Great Britain, Norway.
L. leptolepis: Great Britain.
L. sibirica: Norway.
Populus balsamifera: Argentina, Europe, Japan, Netherlands.
P. balsamifera var. *subcordata*: Denmark.
P. × canadensis: Argentina, Germany, Great Britain, Italy, Norway, Poland.
P. × canadensis var. *eugenei*: Argentina, Europe, Japan, Netherlands.
P. × canadensis f. *gelrica*: Netherlands.
P. × canadensis var. *marilandica*: Argentina, Europe, Japan.
P. × canadensis var. *regenerata*: Argentina, Europe, Japan, Netherlands.
P. × canadensis var. *serotina*: Argentina, Europe, Japan.
P. deltoides: Norway.
P. × generosa: Argentina, Europe, Japan, Scotland.
P. lasiocarpa: Norway.
P. laurifolia: Great Britain, Norway.
P. nigra: Germany, Great Britain, Norway.
P. nigra var. *italica*: Argentina, Chile, China, Colombia, Great Britain, Japan, Norway.
P. × robusta: Argentina, Europe, Great Britain, Japan, Norway.
P. simonii: China.
P. yunnanensis: China.

Melampsora larici-tremulae Kleb. (xxx) **larch-poplar rust**

Forms yellow rust pustules on leaves of *Larix* and *Populus* in early summer, and later subepidermal brown crusty mats overwintering on *Populus* leaves. Known in Europe, Japan, and Kamchatka.

- Larix decidua*: Denmark, Germany, Great Britain, Norway, Sweden, Switzerland.
L. gmelinii: Kamchatka.
L. laricina: Denmark.

L. leptolepis: Germany, Norway.

L. sibirica: Norway, Sweden.

Populus alba: Germany, Great Britain, Norway.

P. balsamifera: Great Britain.

P. tremula: Germany, Great Britain, Norway, Switzerland.

Melampsora magnusiana G. Wagner (xxx)

rust

Forms rust pustules on leaves of *Populus* and of the herbaceous alternate hosts *Chelidonium* and *Corydalis*. Distributed in Europe, Siberia, China, Manchuria, and Japan.

Populus nigra: Greece.

P. sieboldii: Japan.

P. tremula: Denmark.

P. tremula var. *daurica*: Manchuria.

Melampsora mercurialis-tremulae Kleb. (xxx)

rust

Forms yellow rust pustules and dark-brown telia on leaves of *Populus* with *Mercurialis* as the alternate host. Known in Germany and the Netherlands.

Populus alba: Germany, Netherlands.

P. balsamifera: Germany.

P. × canadensis: Germany.

P. nigra: Germany.

P. tremula: Germany, Netherlands.

Melampsora microsora Diet. (xxx)

rust

Forms yellow to brown rust pustules on leaves of *Salix* in Japan.

Salix amygdalina var. *glaucochylla*: Japan.

Melampsora oblonga Bagchee (xxx)

pine needle rust

Autoecious. Forms pinkish-red, later amber-brown, waxy, sub-epidermal fungus mats on needles of *Pinus* in India.

Pinus griffithii: India.

Melampsora paradoxa Diet. & Holw. (xxx)

larch-willow rust

Forms round, pulverulent, yellow rust pustules on leaves of *Larix* and *Salix*. Distributed in temperate North America on both, also in Guatemala on *Salix*.

Salix bonplandiana: Guatemala.

S. humboldtiana var. *stipulacea*: Guatemala.

Melampsora pinitorqua (Braun) Rostr. (xxx) pine-poplar rust

Forms erumpent rust pustules on leaves of *Populus* and on needles and young shoots of *Pinus*. Sometimes damages young pines. Distributed in Europe.

Pinus sp.: Cyprus.

P. mugo: Denmark, Norway.

P. mugo var. *rostrata*: Norway.

P. pinaster: France, Italy.

P. pinea: Italy.

P. sylvestris: Belgium, Denmark, England (Sussex, Kent), Finland, France, Germany, Italy, Latvia, Norway, Poland, Russia, Sweden, Switzerland.

Populus sp.: Yugoslavia.

P. alba: Sweden.

P. balsamifera: Denmark.

P. × canescens: Denmark, Italy, Sweden.

P. tremula: Belgium, Denmark, England (Sussex, Kent), Germany, Italy, Norway, Poland, Sweden, Switzerland.

P. tremuloides: Sweden.

Melampsora populnea (Pers.) Karst. (xxx) **poplar rust**

Apparently can be autoecious on *Populus* by overwintering as spores between bud scales. Early infections are small; later ones large, very pulverulent, and yellow. Apparently is also heteroecious on *Larix* and *Pinus*. Distributed from Washington to California, in Colorado and Rhode Island; also in Argentina, Europe, Siberia, Kamchatka, India, Pakistan, and South Africa.

Larix decidua: Germany, Great Britain, Norway, Switzerland.

L. sibirica: Norway.

Pinus mugo: Norway.

P. sylvestris: Belgium, Great Britain, Norway.

Populus sp.: Union of South Africa.

P. alba: Argentina, Denmark, Great Britain, India, Norway, Pakistan, Russia.

P. balsamifera: Germany.

P. × canadensis var. *serotina*: Germany.

P. × canescens: Denmark.

P. ciliata: Pakistan.

P. deltoides: Denmark.

P. laurifolia: Siberia.

P. nigra: Denmark, Switzerland.

P. nigra var. *italica*: Denmark.

P. suaveolens: Siberia.

P. tremula: Belgium, Denmark, Germany, Great Britain, Japan, Kamchatka, Norway, Siberia.

Melampsora pruinosae Tranz. (xxx) **poplar rust**

Forms pale yellow to red-brown rust pustules on leaves of *Populus* in Siberia and Turkmenistan.

Populus pruinosae: Russia (Turkmenistan).

Melampsora pulcherrima (Bub.) R. Maire (xxx) **rust**

Forms rust pustules on leaves of *Populus*. Distributed in Spain, Algeria, and Morocco.

Populus alba f. *nivea*: Algeria.

P. hickeliana: Morocco.

Melampsora repentis Plowr. (xxx) **rust**

Causes pale yellow spots 1 to 2 cm. long on lower side of leaves of Orchidaceae with *Salix* as alternate hosts. Distributed in Europe and British Guiana.

Salix × ambigua: Denmark.

S. repens: Denmark, Scotland.

S. repens var. *rosmarinifolia*: Denmark.

Melampsora ribesii-purpureae Kleb. (xxx) rust

Forms yellow rust pustules on the lower surface of leaves of *Ribes*. These spores infect leaves of *Salix* forming yellow uredospores, soon followed by tiny subepidermal mats of closely crowded telia, which overwinter in the dead leaves. In the spring these produce very small sporidia, blown about by the lightest breeze to infect *Ribes*, and start anew the life cycle of the uninvited guest. Defoliation of both hosts may result from heavy rust attacks. Distributed in North America from Yukon to New Mexico and California. Also in Guatemala, Europe, Siberia, China, and Japan.

Salix bonplandiana: Guatemala.

S. latifolia: Norway.

S. purpurea: China, Great Britain.

S. wilsonii: China.

Melampsora ribesii-viminalis Kleb. (xxx) rust

Forms golden to brown rust pustules on leaves of *Salix* and *Ribes* in Europe.

Salix viminalis: Denmark, Great Britain, Italy, Scotland.

Melampsora rostrupii G. Wagner (xxx) rust

Forms yellow and dark-brown rust pustules on leaves of *Populus* and herbaceous *Mercurialis* in Europe, India, and China.

Populus alba: China, Denmark, India, Scotland.

P. rotundifolia: China.

P. tremula: China, Denmark, Poland, Scotland.

Melampsora salicina Lév. (xxx) rust

Forms black rust fungus masses on leaves of *Salix* in Europe and Siberia.

Salix acutifolia: Germany.

S. caprea: Denmark, Estonia.

S. cinerea: Estonia.

S. daphnoides: Germany.

S. daphnoides var. *pomeranica*: Germany.

S. hastata: Siberia.

S. × mollissima: Denmark.

S. pentandra: Siberia.

S. purpurea: Denmark.

S. undulata: Denmark.

Melampsora salicis-albae Kleb. (xxx) rust

Forms yellow and brown rust pustules on leaves and twigs of *Salix* with herbaceous *Allium* as alternate hosts. Distributed in Europe, India, Pakistan, and China.

Salix sp.: China.

S. alba: Great Britain, India, Pakistan.

S. alba var. *vitellina*: Great Britain, Norway.

S. rubens: Norway.

Melampsora vitellinae (DC.) Thuem. (xxx) **rust**

Forms minute, round, yellowish-red rust pustules on leaves of *Salix* followed with small, dark-brown, crusty, subepidermal fungus mats. Distributed in Europe, Siberia, and Japan.

Salix alba var. *vitellina*: Austria.

S. amygdalina: Germany, Austria.

S. fragilis: Austria, Germany.

S. × multinervis: Japan.

Melampsora yezoensis Miyabe & Matsu. (xxx) **rust**

Forms rust sporophores on leaves of *Salix* in China. The herbaceous *Corydalis* is its alternate host.

Salix longiflora: China.

Melampsorella caryophyllacearum Schroet. (xxx) **fir witches'-broom**

Forms witches'-brooms by systemic infection of *Abies*. The needles on the brooms are annual instead of perennial, and bear rust pustules on each new annual generation of needles. Occasionally an infection causes lesion of a large stem with a distinct burl. Alternate hosts of this rust are herbaceous *Cerastium* and *Stellaria* species. Distribution is holarctic in *Abies* forests, southward to northern New Mexico and in Mexico in North America; also in Europe, Siberia, China, and Japan.

Abies sp.: Germany, Turkey, Yugoslavia.

A. alba: Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain, Ireland, Latvia, Poland, Switzerland, Yugoslavia.

A. cephalonica: Germany.

A. concolor: Germany.

A. firma: Japan.

A. forrestii: China.

A. nordmanniana: France, Germany, Great Britain.

A. pinsapo: France, Germany.

A. sachalinensis: Japan.

A. sibirica: Siberia.

Melampsoridium alni (Thuem.) Diet. (xxx) **larch-alder rust**

Forms yellow to brown rust pustules on leaves of *Alnus* in Great Britain and Siberia (?) and on needles of *Larix* in Great Britain. Not the same as *Melampsoridium hiratsukanum* Ito of America and Japan. [In view of recent findings, the identity of the Siberian fungus is uncertain. See: Cummins, G. B., and Stevenson, J. A. A check list of North American rust fungi (Uredinales). Plant Dis. Rptr., Supp. 240, p. 130, 1956.]

Alnus fruticosa: Siberia.

A. glutinosa: Great Britain.

A. incana: Great Britain.

A. viridis: Siberia.

Larix decidua: Great Britain (Scotland).

Melampsoridium betulinum (Fr.) Kleb. (xxx) **larch-birch rust**

Forms subcylindric tubules containing reddish-orange spores on *Larix* leaves. These infect *Betula* leaves, forming an early reddish-yellow powdery stage followed by slightly raised subepidermal crusts, waxy-yellow to brown or black. The latter is the overwintering stage which infects the *Larix* leaves the next spring, starting a new life cycle of the pathogen. Some damage may occur by defoliation of young birches. Distributed in North America from Newfoundland to Alaska and southward to New Jersey and Indiana to the east; to Montana and Washington in the west; also in Europe, Russia, Siberia, Japan, Kamchatka, and New Zealand.

Betula sp.: Austria, Belgium, Czechoslovakia, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Netherlands, Norway, Siberia, Switzerland.

B. celtiberica: Portugal.

B. ermanii: Japan, Kamchatka.

B. ermanii var. *communis*: Japan.

B. fruticosa: Denmark.

B. lenta: Norway.

B. maximowicziana: Japan.

B. nana: Norway.

B. pendula: Denmark, Germany, Great Britain, Norway, Poland, Russia (Kazan), Siberia, Switzerland.

B. platyphylla: Kamchatka.

B. platyphylla var. *japonica*: Japan.

B. pubescens: Denmark, Great Britain, Norway.

Larix sp.: Poland, Scotland.

L. decidua: Germany, Great Britain, Ireland, Switzerland.

L. leptolepis: Great Britain.

Melampsoridium carpini (Fekl.) Diet. (xxx) **hornbeam rust**

Forms yellow spore pustules on leaves of *Carpinus* and *Ostrya*. The overwintering stage later forms yellow to yellowish-brown, small, prismatic subepidermal mats of overwintering spores. No alternate host is known. Distributed in one locality in the Adirondack Mountains of New York and in Guatemala; also in Europe, China, and Japan.

Carpinus sp.: China.

C. betulus: Germany, Italy, Switzerland.

C. laxiflora: Japan.

C. tschonoskii: Japan.

Ostrya virginiana var. *guatemalensis*: Guatemala.

Melampsoridium hiratsukanum Ito ex Hirat. (xxx) **rust**

Forms yellow to brown rust pustules on the lower surface of leaves of *Alnus*. Distributed in California, Mexico, Guatemala, Ecuador, China, and Japan. Not *Melampsoridium alni* (Thuem.) Diet. of Europe. [See note under *Melampsoridium alni*.]

Alnus acuminata: Guatemala.

A. arguta: Guatemala.

A. cremastogyne: China.

A. hirsuta: China, Japan.

A. jorullensis: Ecuador, Guatemala.

A. jorullensis var. *mirbelii*: Ecuador.

A. maximowiczii: Japan.

A. pendula: Japan.

A. sinuata: Japan.

A. viridis: Japan.

Melanconis juglandis (Ell. & Ev.) Graves (xx) **walnut dieback**

Forms black, pustulelike, conidial acervuli breaking through the epidermis of dead bark. It causes slow dieback of *Juglans*. Affected trees usually decline slowly and finally die when the fungus reaches the main trunk, even of large trees. Distributed generally in North America wherever *Juglans* grows. Also widely distributed in Europe where it has been known as *Melanconium oblongum* Berk., the name of the ascigerous stage.

Juglans regia: Norway.

Melanconis stilbostoma (Fr.) Tul. (xxx) **birch blight**

Forms numerous pustulate swellings, 1 to 2 cm. in diameter, breaking through the epidermis of dead and dying birch twigs. About 1900, a serious outbreak of disease on birch trees of London, England, and its suburbs, was described. The infected trees died quickly and in large numbers in 1 or 2 years. Similar diseases have been reported in continental Europe. The pathogen is widely distributed in North America and Europe.

Betula sp.: England.

Melanophora sorbi (Rostr.) v. Arx (xxx) **anthracnose**

Anthracnose lesions on *Sorbus* leaves, ashen in color, bear conidial pustules. Known in Denmark and Finland.

Sorbus × *hybrida*: Denmark.

Meliola alchorneae F. L. Stevens & Tehon (xxx) **black mildew**

Forms fungus colonies on lower leaf surfaces, round, diffuse, with black spherical perithecia seated on loose mycelia. On leaves of *Alchornea* in British Guiana.

Alchornea sp.: British Guiana.

Meliola alstoniae Koord. (xxx) **black mildew**

Forms hypophyllous colonies, effused, black, with sparse, globular perithecia on loose mycelium. On leaves of *Alstonia* in Java.

Alstonia scholaris: Java.

Meliola amaniensis Hansf. (xxx) **black mildew**

Forms black mildew on leaves of *Pittosporum* in Tanganyika.

Pittosporum undulatum: Tanganyika.

Meliola antioquensis Orejuela (xxx) **black mildew**

Forms epiphyllous colonies, black, making large patches on leaves of *Persea* in Colombia.

Persea petiolaris: Colombia.

Meliola buettneriae Stevenson (xxx) **black mildew**

Forms colonies, amphigenous, 2 to 3 mm. in diameter, compact, on definite brown spots on the host. On *Buettneria* living leaves and twigs in Brazil.

Buettneria ramosissima: Brazil.

Meliola byrsonimicola F. L. Stevens & Tehon (xxx) **black mildew**

Forms amphigenous colonies, small, often confluent and large. Perithecia globose, black, 105 to 180 microns in diameter. On *Byrsonima* in British Guiana.

Byrsonima sp.: British Guiana.

Meliola castanopsidis Hansf. (xxx) **black mildew**

Forms black mildew on leaves of *Castanopsis* in China.

Castanopsis tibetana: China.

Meliola cinnamodendri Stevenson (xxx) **black mildew**

Forms dense colonies, small but coalescing to form a uniform "sooty, mold-like" covering on the leaf blades. Perithecia scattered through the colonies, globose, 150 to 200 μ in diameter. On living leaves of *Cinnamodendron* in Brazil.

Cinnamodendron axillare: Brazil.

Meliola clerodendricola P. Henn. (xxx) **black mildew**

Forms colonies, epiphyllous, widely effused, confluent, crusty, black, with black perithecia; subglobose to cupulate, 90 to 200 μ in diameter. On leaves of *Clerodendrum* in Central Africa and Pakistan.

Clerodendrum capitatum: Africa (Bongoland).

C. infortunatum: Pakistan.

Meliola clusiae F. L. Stevens (xxx) **black mildew**

Forms brown colonies, hypophyllous, diffuse, 3 to 5 mm. in diameter, on leaves in Puerto Rico.

Clusia gundlachii: Puerto Rico.

Meliola condaliae Stevenson (xxx) **black mildew**

Forms amphigenous colonies, 2 to 3 mm. in diameter, sometimes coalescing to cover the entire leaf surface, occasionally on smaller twigs, dark brown. On living leaves and twigs of *Condalia* in Texas and Mexico.

Condalia obovata: Mexico.

Meliola conigera F. L. Stevens & Tehon (xxx) **black mildew**

Forms colonies covering about half the surface of the pinnae. Perithecia flat and radiate, becoming globular, 225 μ in diameter. On pinnae of *Pentaclethra* in British Guiana.

Pentaclethra maculoba: British Guiana.

Meliola diplochaete Syd. & P. Syd. (xxx) **black mildew**

Forms discoid black spots 1 to 2 cm. wide with globose perithecia, collapsed when dry, black, 90 to 140 μ , rough. On leaves of *Talauma* in the Philippines.

Talauma villariana: Philippines.

Meliola dracaenicola Pat. (xxx) **black mildew**

Forms black tomentose spots with black, globose perithecia 300 μ across, on leaves of *Dracaena* in French Equatorial Africa and Gold Coast.

Dracaena sp.: French Equatorial Africa (Brazzaville).

Meliola fagraeae Syd. (xxx) **black mildew**

Forms dark rounded spots 0.5 to 1.5 cm. in diameter with sparse perithecia, globular, 130 to 150 μ in diameter. On leaves of *Fagraea* in the Philippines and Moluccas.

Fagraea speciosa: Moluccas.

Meliola gnathonella F. L. Stevens & Tehon (xxx) **black mildew**

Forms black mildew on leaves of *Jacaranda* in British Guiana.

Jacaranda sp.: British Guiana.

Meliola guianensis F. L. Stevens & Dowell (xxx) **black mildew**

Forms black fungus patches on brown spots 3 to 10 mm. in diameter on leaves of *Theobroma* in British Guiana.

Theobroma cacao: British Guiana.

Meliola gymnanthicola F. L. Stevens (xxx) **black mildew**

Forms fungus webs of black mildew on leaves of *Gymnanthes* in Puerto Rico.

Gymnanthes lucida: Puerto Rico.

Meliola indica Syd. (xxx) **black mildew**

Forms black mildew colonies 2 to 6 mm. across on leaves of *Barringtonia*. Distributed in India, Pakistan, and Philippines.

Barringtonia acutangula: Pakistan.

Meliola lonchocarpicola F. L. Stevens (xxx) **black mildew**

Forms black mildew colonies on the leaves of *Lonchocarpus* in Venezuela and Panama.

Lonchocarpus sp.: Venezuela.

Meliola mangiferae Earle (xxx) **black mildew**

Forms black, superficial fungus patches on leaves of *Mangifera*. Distributed in Jamaica, Puerto Rico, Dominican Republic, Venezuela, Colombia, Peru, Malaya, Philippines, and the Moluccas.

Mangifera indica: Colombia, Jamaica, Moluccas, Puerto Rico, Venezuela.

Meliola paullinae F. L. Stevens (xxx) **black mildew**

Forms dark fungus patches on leaves of *Casearia*, *Paullinia*, etc. Known in Puerto Rico, Venezuela, and Gold Coast.

Casearia aculeata: Puerto Rico.

C. arborea: Puerto Rico.

C. guianensis: Puerto Rico, Venezuela.

C. sylvestris: Puerto Rico.

Mammea americana: Puerto Rico.

Meliola theobromae Faber (xxx) **black mildew**

Forms superficial, black fungus patches on leaves of *Theobroma* in the Cameroons.

Theobroma cacao: Africa (Cameroons).

Meliolinella palmicola (F. L. Stevens) Hansford (xxx) **black mildew**

Forms small, blackish fungus plaques on leaves of *Elaeis* in French West Africa.

Elaeis guineensis: French West Africa.

Meria laricis Vuill. (xxx) **larch leaf blight**

Causes browning and shedding of leaves of *Larix*; only young trees, 10 years or less in age, are damaged. Distributed in Europe; also reported in Idaho.

Larix decidua: Austria, Czechoslovakia, Denmark, France, Germany, Great Britain, Ireland, Italy, Netherlands, Norway, Sweden.

L. gmelinii: Great Britain.

L. leptolepis: Great Britain, Norway.

Micronegeria fagi Diet. & Neger (xxx) **rust**

Forms yellow to rufous rust pustules on leaves of *Nothofagus* in Chile.

Nothofagus obliqua: Chile.

N. procera: Chile.

Micropeltella mulleri Stevenson (xx)

Forms perithecia scattered over the lower surface of *Coffea* leaves; circular, raised in the center, 500 to 800 μ in diameter. Distributed in Brazil.

Coffea arabica: Brazil.

Micropeltis applanata Mont. (xxx) **fly-speck**

Forms dimidiate, round perithecia with central pores, on leaves of species of Lauraceae and other broad-leaved trees. Distributed widely in El Salvador, Cuba, French Guiana, Peru, Brazil, Ceylon, and the Philippines.

Coffea arabica: El Salvador.

Microsphaera alni DC. ex Wint. (xxx) **powdery mildew**

Forms a white to gray, powdery fungus coating on leaves of numerous broad-leaved trees. Distributed in North America, Chile, Europe, India, China, and Japan.

Alnus glutinosa: Denmark, Germany.

A. incana: Denmark, Japan, Norway.

Betula pendula: Germany.

B. pubescens: Germany, Norway.

Castanea crenata: Japan.

C. mollissima: China.

C. sativa: Japan.

Corylus colurna: India.

C. cornuta: Japan.

- C. heterophylla*: Japan, China.
C. heterophylla var. *japonica*: Japan.
C. sieboldiana: Japan.
C. sieboldiana var. *mandshurica*: Japan.
Hovenia dulcis: Japan.
Juglans regia: Italy.
Lindera umbellata: Japan.
Picrasma quassioides: China, Japan.
Quercus sp.: France, Germany.
Q. acutissima: China.
Q. aliena: China.
Q. dentata: Japan.
Q. glandulifera: China, Japan.
Q. mongolica var. *grosseserrata*: Japan.
Q. pubescens: Greece.
Styrax japonica: Japan.

***Microsphaera alni* var. *extensa* (Cke. & Pk.) Salmon (xxx)**
oak powdery mildew

Forms a white, powdery coating mostly on leaves and shoots of *Quercus*. In late summer tiny, black, globular perithecia form on the white coating. About 50 years ago a very severe outbreak of the conidial stage appeared in Europe and caused much damage. Finally, ascogenous fruiting bodies were found and were apparently the same as the long-known North American *Microsphaera alni* var. *extensa*. It has been called *M. quercina* (Schw.) Burr. and *M. alphitoides* Griff. & Maubl. also. In North America it has caused no serious trouble, but in Europe it has been disastrous to Old World oak species, especially coppice and nursery stock. Older trees previously defoliated by insects were killed over large areas. Distributed in North America, Brazil, Chile, Europe, Siberia, China, India, and Japan.

Castanea sativa: Europe.

Fagus sylvatica: Denmark, Great Britain, Norway.

Quercus sp.: Algeria, Argentina, Belgium, Corsica, Czechoslovakia, England, France, Germany, Hungary, Italy, Madagascar, Netherlands, Norway, Portugal, Rhodesia, Russia, Switzerland, Spain, Tanganyika.

Q. acutissima: Japan.

Q. brutia: France.

Q. cerris: Austria, France, Italy, Scotland, Yugoslavia.

Q. coccifera: Austria, France.

Q. coccinea: Denmark.

Q. dentata: France, Japan.

Q. frainetto: Austria, France, Scotland, Yugoslavia.

Q. glandulifera: Japan.

Q. ilex: Austria, Italy.

Q. lusitanica: Austria.

Q. mongolica: Siberia.

Q. mongolica var. *grosseserrata*: Europe, Japan.

Q. petraea: Austria, Denmark, France, Germany, Great Britain, Italy, Poland, Rumania, Switzerland, Yugoslavia.

Q. pubescens: Austria, Corsica, France, Great Britain, Yugoslavia.

Q. pyrenaica: Austria, France, Switzerland.

Q. repanda: Argentina, Europe, Madagascar, Rhodesia.

Q. robur: Austria, Brazil, Denmark, England, France, Germany, Italy, Norway, Poland, Rumania, Russia, Scotland, Switzerland, Wales, Yugoslavia.

Q. suber: Austria.

Microsphaera dentata Liou (xxx) powdery mildew

Forms powdery mildew on leaves of *Quercus* in China.

Quercus sp.: China.

Microsphaera yamadae (Salm.) Syd. (xxx) powdery mildew

Forms powdery mildew on *Juglans* and *Hovenia* in Japan.

Hovenia dulcis var. *tomentella*: Japan.

Juglans ailantifolia: Japan.

Microstroma album Sacc. var. **japonicum** P. Henn. (xxx)
powdery leaf spot

Forms white, powdery conidial spots on the lower surface of leaves of *Quercus*. Distributed in Japan.

Quercus glandulifera: Japan.

Q. glauca: Japan.

Q. mongolica var. *grosseserrata*: Japan.

Microstroma ingaicola Lamkey (xxx) witches'-broom

Forms white, powdery conidial pustules on the lower leaf surfaces of *Inga*. Causes large witches'-brooms. Known in Puerto Rico.

Inga laurina: Puerto Rico.

I. vera: Puerto Rico.

Microstroma juglandis (Bereng.) Sacc. (xxx) powdery leaf spot

Forms powdery, white, conidial fungus pustules on leaves of *Juglans* and *Carya*. Also causes formation of witches'-brooms on *Carya*. Distributed in North America, Europe, and India.

Juglans regia: Bulgaria, Denmark, Germany, India, Italy, Russia.

Microstroma pithecolobii Lamkey (xxx) white leaf spot

Forms white conidial fungus pustules on leaves of *Pithecellobium*. Distributed in Puerto Rico, El Salvador, and Venezuela. Evidently imported into Puerto Rico not long before it was found there.

Pithecellobium dulce: El Salvador.

P. saman: Puerto Rico, Venezuela.

Microstroma platani Eddel. & Engelke (xxx) white leaf spot

Forms small, white spots bearing conidia on leaves of *Platanus* in Germany and Sweden.

Platanus occidentalis: Germany.

Milesia blechni (Syd.) Syd. (xxx) fir-fern rust

See general account of this fungus under *Hyalopsora*. *Milesia blechni* is distributed in Europe on *Abies alba*.

Abies alba: Great Britain.

Milesia itoana (Kamei) Faull (xxx) fir-fern rust

See general account under *Hyalopsora*. Known on *Abies* in Japan.
Abies sachalinensis: Japan.

Milesia jezoensis (Kamei & Hirat.) Faull (xxx) fir-fern rust

See description under *Hyalopsora*. Known on *Abies* in Japan.
Abies sachalinensis: Japan.

Milesia kriegeria (Magn.) Arth. (xxx) rust

See description under *Hyalopsora*. Forms rust aecia on the lower surface of current-year needles of *Abies* and alternate uredinia and telia on leaves of ferns. Distributed in Europe, but not in America. It has been confused with a similar American rust that is entirely distinct.

Abies alba: Great Britain, Switzerland.
A. cephalonica: Great Britain, Switzerland.
A. nordmanniana: Great Britain, Switzerland.
A. pinsapo: Switzerland.

Milesia polypodii B. White (xxx) rust

See description under *Hyalopsora*. Generally distributed on *Abies* in Europe.

Abies alba: Great Britain, Switzerland.
A. cephalonica: Switzerland.
A. nordmanniana: Switzerland.
A. pinsapo: Switzerland.

Milesia scolopendrii (Fckl.) Arth. (xxx) rust

See description under *Hyalopsora*. Distributed widely on *Abies* in Europe eastward to the Caucasus.

Abies alba: Great Britain, Switzerland.
A. cephalonica: Switzerland.
A. nordmanniana: Switzerland.
A. pinsapo: Switzerland.

Milesia vogesiaca (Syd.) Faull (xxx) rust

See general description under *Hyalopsora*. Distributed on *Abies* in British Columbia, Oregon, Europe, Algeria, and Japan.

Abies alba: Great Britain, Switzerland.
A. cephalonica: Switzerland.
A. firma: Japan.
A. nordmanniana: Switzerland.
A. pinsapo: Switzerland.
A. sachalinensis: Japan.

Mollisia grisleae (Syd.) J. H. Miller & Burton (xx) —————

A minute leaf pathogen forming flattened discs 150 to 300 μ across on the upper surface of leaves of *Combretum* in Venezuela.

Combretum secundum; Venezuela.

Mollisia ravida Syd. (xx)

Forms small fungus discs on effuse, pale, indefinite spots on leaves of *Lagerstroemia* in the Philippines.

Lagerstroemia speciosa: Philippines.

Monochaetia desmazierii Sacc. (xxx)

leaf spot

Forms large spots, 2.5 to 7 cm. across, on leaves of *Castanea*, *Quercus*, and *Carya*, and bearing small, erumpent, subepidermal pustules. Widely distributed in North America; especially destructive in the Southeastern United States. Usually severe only in late summer when damage is not important. It is reported in Japan on *Castanea*.

Castanea crenata: Japan.

Monochaetia unicornis (Cke. & Ell.) Sacc. (xx) cypress canker

A wound parasite of *Cupressus* and related species, causing woody cankers often at branch crotches and hail wounds. It forms erumpent pustules on diseased bark and wood. Distributed in Eastern United States, Kenya, Tanganyika, New South Wales, and New Zealand.

Chamaecyparis lawsoniana: New Zealand.

Cupressus duclouxiana: Kenya.

C. lusitanica: Kenya, Tanganyika.

C. lusitanica var. *benthamii*: Kenya.

C. macrocarpa: New Zealand.

C. sempervirens: Kenya, New South Wales.

C. sempervirens f. *stricta*: Kenya.

Juniperus procera: Kenya.

Monostichella robergei (Desm.) Hoehn. (xx)

anthracnose

Conidial pustules occur on *Carpinus* leaf spots, umber to subochraceous, without a distinct border line, 3 to 5 mm. across. On living or dying leaves. Known in North America and western Europe.

Carpinus betulus: Great Britain.

Monostichella salicis (West.) v. Arx (xxx) willow anthracnose

Forms conidial pustules on anthracnose leaf spots of *Salix*. Distributed in North America and Europe.

Salix alba: Austria, Denmark, Great Britain.

S. caprea: Great Britain.

S. fragilis: Great Britain, Denmark.

S. rubens: Denmark.

Mycena citricolor (Berk. & Curt.) Sacc. (xxx)

thread blight

Also known as *Omphalia flavida* Maubl. & Rangel. A mushroom, small, yellow, rarely fully developed. The fungus forms threadlike strands of mycelium running over the surface of leaves and twigs of coffee and many other broad-leaved trees. Strands crossing each other often form sterile, light-colored pinlike masses in heavy shade. Conidia are produced by them in great numbers. Distributed widely in the West Indies and Central America, and in South America where coffee is grown.

Andira inermis: Puerto Rico.

Coffea abeokutae: Puerto Rico.

C. arabica: Colombia, Puerto Rico, Venezuela, West Indies.

C. canephora: Puerto Rico.

C. canephora var. *laurentii*: Puerto Rico.

C. canephora var. *robusta*: Trinidad.

C. liberica: Puerto Rico.

Erythroxylon coca: Peru.

Inga vera: Puerto Rico.

Mangifera indica: Puerto Rico.

Mycosphaerella bambusifolia Miyake & Hara (xx) **bamboo leaf spot**

Forms small perithecia on fuscous, often coalescent, leaf spots on *Phyllostachys* in Japan.

Phyllostachys bambusoides: Japan.

P. nigra var. *henonis*: Japan.

Mycosphaerella caryophyllata Bour. & Heim (xx) **leaf spot**

Associated with leaf spot of *Eugenia* in Madagascar.

Eugenia caryophyllata: Madagascar.

Mycosphaerella castanicola Kleb. (xx) **chestnut leaf spot**

Forms small rounded conidial pustules with pores emitting white tendrils of conidia; causes numerous yellow and brown spots on leaves of *Castanea* in Europe.

Castanea sativa: France, Germany, Great Britain.

Mycosphaerella castillae Stevenson & A. J. Wats. (xx) **leaf spot**

Associated with irregular, vein-limited, leaf spots, white with narrow brown borders on the upper surface and reddish brown below. On *Castilla* in Costa Rica.

Castilla costaricana: Costa Rica.

Mycosphaerella coffeae Noack (xx) **coffee leaf spot**

Associated with leaf spot of *Coffea* in Brazil and the Congo.

Coffea arabica var. *myrtifolia*: Congo.

Mycosphaerella coffeicola Cke. (xxx) **coffee leaf spot**

On rounded, brown leaf spots with narrow gray margins on *Coffea*. Distributed in Jamaica, El Salvador, Ecuador, Venezuela, Brazil, Congo, Uganda, Cameroons, Mauritius, and India.

Coffea arabica: El Salvador, Jamaica.

Mycosphaerella cryptomeriae Shirai & Hara (xx) **needle blight**

Causes needle blight of *Cryptomeria* seedlings, cuttings, and old trees. It is a wound parasite doing considerable damage. Known in Japan.

Cryptomeria japonica: Japan.

Mycosphaerella elaeidis (Beeli) Hendrickx (xx) **leaf spot**

Occurs on large, irregular, gray leaf spots on *Elaeis*. Known in the Congo.

Elaeis guineensis: Congo.

Mycosphaerella gastonis (Sacc.) Lindau (xx) leaf spot

Occurs on leaf spots, gray with slightly raised, reddish-brown edges on *Cocos*. Distributed in Samoa, Tahiti, Ceylon, Philippines, Madagascar, and Comoro Islands.

Cocos nucifera: Comoro Islands, Madagascar, Philippines.

Mycosphaerella heimii Bour. (xx) leaf blight

Occurs on blighted *Eucalyptus* leaves in Madagascar.

Eucalyptus obliqua: Madagascar.

Mycosphaerella heveae Petch (xx) leaf spot

Occurs on small, yellow leaf spots on *Hevea* which become purple or purplish brown and confluent. Known in Ceylon and Andaman Islands.

Hevea brasiliensis: Andaman Islands.

Mycosphaerella heveicola Saccas (xx) leaf spot

Occurs on yellow to grayish-brown spots with narrow dark edges and 0.5 to 1 cm. across. On *Hevea* in French Equatorial Africa.

Hevea brasiliensis: French Equatorial Africa.

Mycosphaerella laricina Hartig (xx) larch needle spot

Forms perithecia on brown spots on needles of *Larix* causing premature leaf fall. Known in Germany and Sweden.

Larix decidua: Germany, Sweden.

L. leptolepis: Germany.

Mycosphaerella maculiformis (Fr.) Schroet. (xx) leaf spot

Occurs on small, black, angular spots limited by veins on leaves of numerous broad-leaved temperate-zone trees. Has caused severe general defoliation in years of prolonged wet weather. Distributed in North America and Europe.

Acer platanoides: Denmark.

Betula sp.: Yugoslavia.

Castanea sp.: Denmark.

C. sativa: Italy.

Inga vera: Puerto Rico.

Quercus sp.: Denmark.

Tilia sp.: Denmark.

Ulmus sp.: Denmark.

Mycosphaerella molleriana Thuem. (xxx) leaf spot

Forms perithecia on brown spots with narrow, darker borders on leaves of *Eucalyptus*. Known in California, Portugal, and Tanganyika.

Eucalyptus globulus: Tanganyika.

Mycosphaerella mori (Fekl.) Lindau (xx) leaf and fruit spot

Develops perithecia on irregular pale-brown blotches on leaves and fruit spots on *Morus*. Distributed in the United States, Canada, South America, Europe, Uganda, Iran, India, and Japan.

Morus sp.: Austria, Brazil, France, Germany, Italy, Russia, Union of South Africa.

M. alba: China, India, Iran, Germany, Venezuela.

M. indica: Tanganyika.

M. nigra: Australia, Bulgaria, Denmark, Germany.

***Mycosphaerella nothofagi* (Speg.) comb. nov. Spaulding (xxx)**
false beech leaf spot

[Syn.: *Sphaerella nothofagi* Speg.]

Occurs on leaves of *Nothofagus* in Argentina.

Nothofagus obliqua: Argentina (Nahuel Huapi Lake).

N. procera: Argentina (Nahuel Huapi Lake).

***Mycosphaerella paulowniae* Shirai & Hara (xx)** **leaf spot**

Occurs on leaf spots of *Paulownia* in Japan.

Paulownia tomentosa: Japan.

***Mycosphaerella perseae* Miles (xx)** **avocado leaf spot**

Develops perithecia on large leaf spots, ashen above and brown beneath on *Persea* in Puerto Rico and Mexico.

Persea americana: Puerto Rico, Mexico.

***Mycosphaerella pinifolia* Ducom. (xxx)** **needle blight**

The mycelium is mostly superficial and brown on needles of *Pinus* in France.

Pinus pinaster: France.

***Mycosphaerella platanifolia* Cke. (xxx)** **leaf blight**

Causes a leaf blight of *Platanus* locally much like that due to *Gnomonia veneta*. The pathogen is known in the United States and Japan.

Platanus × acerifolia: Japan.

P. orientalis: Japan.

***Mycosphaerella populi* (Auers.) Schroet. (xxx)** **leaf spot**

Develops perithecia on leaves of *Populus* in Europe and Argentina. Also reported in Alaska.

Populus × canadensis: Italy.

P. × canadensis var. *serotina*: Great Britain (Kew).

P. nigra: Germany, Great Britain, Italy, Russia.

P. nigra var. *italica*: Argentina.

P. tremula: Germany, Italy.

***Mycosphaerella populicola* G. E. Thompson (xxx)** **leaf spot**

Forms spots 1 to 8 mm. across, reddish to dark brown with yellow borders on leaves of *Populus*. Distributed from Vermont to Michigan, Nebraska, Idaho, and Ontario; also reported in Italy.

Populus × canadensis: Italy.

Mycosphaerella populorum Thompson (xxx) **canker**

Causes spots 1 to 15 mm. across, reddish to dark brown with yellow edges on leaves and cankers on branches of *Populus*. The imperfect stage proved to be *Septoria musiva* Pk. It is widespread and indigenous in the United States and Canada on native poplars as a leaf spot, but is not known to form cankers on the native poplars. It is known in France and Argentina.

Populus laurifolia: Argentina.

P. nigra var. *italica*: Argentina.

P. simonii: Argentina.

Mycosphaerella tabebuiae Miles (xx) **leaf spot**

Associated with amphigenous, small, white, transparent spots with brown-purple borders on leaves of *Tabebuia* in Puerto Rico.

Tabebuia haemantha: Puerto Rico.

Mycosphaerella togashiana Ito & Kobayashi (xx) **leaf spot**

Occurs on leaves of *Populus* causing defoliation. Known in Japan.

Populus alba: Japan.

P. simonii: Japan.

Mycosphaerella ulmi Kleb. (xx) **leaf spot**

Forms perithecia on leaves of *Ulmus*. Widespread in North America and Europe.

Ulmus sp.: Germany, Norway.

U. glabra: Germany, Denmark.

U. laevis: Denmark.

Mycosphaerella websteri Wiehe (xxx) **leaf spot**

Causes round leaf spots, brown with gray centers. Defoliation often results. On *Aleurites* in Nyasaland.

Aleurites montana: Nyasaland.

Mycosphaerella woronowii Jacz. (xxx) **leaf blight**

Occurs on ochraceous spots with dark edges on leaves of *Juglans* in the Caucasus.

Juglans regia: Caucasus.

Myrothecium roridum Fr. (xxx) **coffee canker**

Causes stem canker, wilt, and leaf spot on *Coffea*. Distributed in the United States, Colombia, Europe, and Gold Coast.

Coffea arabica: Colombia.

C. canephora var. *robusta*: Colombia.

C. liberica: Colombia.

Myxofusicoccum salicis Died. (xxx) **willow dieback**

Causes anthracnose and dieback of *Salix* in the Netherlands.

Salix alba: Netherlands.

Myxosporella schini Carranza **canker**

Causes bark cankers on twigs and branches of *Schinus*, depressed, 1 to 2 mm. long, developing into white to pinkish cankers 0.5 cm. by 3 to 4 mm. The entire twig may die. The leaves show round, light brown spots 1 to 3 mm. Cankers form on petioles and midribs, similar to, but smaller than, those on twigs, and kill the leaves. Known in Argentina.

Schinus molle: Argentina.

Myxosporium abietinum Rostr. (xx) **root crown canker**

Associated with girdling at the root crown of conifers, and death of young trees. Known in Great Britain, Denmark, and Germany.

Larix sp.: Denmark.

Myxosporium devastans Rostr. (xxx) **dieback**

Causes dieback of *Betula* and *Acer* in Denmark and Iceland.

Acer pseudoplatanus: Denmark.

Betula sp.: Denmark, Iceland.

B. pendula: Denmark.

Myxosporium hoheriae J. D. Atk. (xx) **dieback**

Causes wilt and dieback induced by lesions under the bark. Proved a wound parasite on *Hoheria* and *Plagianthus* in New Zealand.

Hoheria populnea: New Zealand.

H. sexstylosa: New Zealand.

Plagianthus betulinus: New Zealand.

Naemacyclus niveus (Fr.) Sacc. (xxx) **pine needle cast**

Associated with needle cast of conifers, chiefly *Pinus* spp. Apothecia numerous, at first waxy and dark brown, later fading to the color of the deadened needles; bursting the epidermis along the stomatal lines. The fruiting discs are yellowish. Distributed in North America, western Europe, and north and central Africa.

Abies pinsapo: Spain.

Pinus halepensis: Africa (Tunis).

P. mugo: Denmark, Italy.

P. nigra: Czechoslovakia, Denmark, Germany, Italy.

P. nigra var. *poiretiana*: Germany.

P. pinaster: Belgium, France, Germany, Italy.

P. pinea: Germany.

P. sylvestris: England, France, Scotland.

Napicladium celtidis Cav. (xx) **leaf spot**

Forms conidial pustules on rounded to angular olivaceous spots on living leaves of *Celtis* in Italy.

Celtis latifolia: Italy (Catania).

Nectria cinnabarina Fr. (xx) **hardwoods wilt, dieback**

An active wound parasite of hardwoods with strains varying from saprophytic to aggressively parasitic. It has two growth stages; an early conidial form breaking through the epidermis as pustules exuding

abundant pinkish spores; and a later ascogenous form with groups of tiny globular, cinnabar-red bodies crowded closely together on the surface of diseased bark or wood. It attacks numerous hardwoods in many countries. It is distributed generally in North America and Europe and is known in Brazil, Siberia, Ceylon, India, Japan, and New Zealand.

- Acer campestre*: Netherlands.
A. cappadocicum f. *rubrum*: Netherlands.
A. lobeli: Netherlands.
A. palmatum: Japan.
A. palmatum f. *atropurpureum*: Netherlands.
A. palmatum f. *sessilifolium*: Netherlands.
A. platanoides: Germany, Netherlands.
A. platanoides f. *schwedleri*: Netherlands.
A. pseudoplatanus: Germany, Great Britain, Netherlands.
A. pseudoplatanus f. *worleei*: Netherlands.
Aesculus hippocastanum: Denmark, Germany, Great Britain, Netherlands.
Ailanthus altissima: Belgium.
Albizia julibrissin: Japan.
Carpinus betulus: Netherlands.
Fagus sylvatica: Denmark.
Fraxinus excelsior: Germany.
Juglans sp.: Belgium, Czechoslovakia.
Magnolia sp.: Germany (Hamburg).
Morus sp.: France.
M. alba: Japan.
Populus × *canadensis*: Italy.
Quercus robur: Germany.
Tilia × *europaea*: Denmark.
T. platyphyllos: Germany (Hamburg).
Ulmus carpinifolia: Netherlands.
U. carpinifolia f. *sarniensis*: Netherlands.
U. carpinifolia var. *umbraculifera*: Netherlands.
U. × hollandica: Netherlands.
U. pumila: Netherlands.

Nectria coccinea Fr. (xx) hardwoods annual stem canker

Causes annual bark lesions on stems of various hardwood trees. Distributed sparsely over North America, northern and central Europe, and is known in Brazil, Siberia, South Africa, Indonesia, and Tasmania.

- Acer negundo*: Denmark.
Alnus glutinosa: Denmark.
Fagus sylvatica: Denmark, Germany, Switzerland.
Laburnum anagyroides: Denmark.
Populus balsamifera: Netherlands.
P. × berolinensis: Netherlands.
P. × canadensis f. *erecta*: Netherlands.
P. × canadensis var. *eugenei*: Netherlands.
P. × canadensis f. *gelrica*: Netherlands.
P. × canadensis var. *marilandica*: Netherlands.
P. × canadensis var. *regenerata*: Netherlands.

P. × canadensis var. *serotina*: Netherlands.
P. deltoides: Netherlands.
P. fremontii: Netherlands.
P. fremontii var. *wislizenii*: Netherlands.
P. laurifolia: Netherlands.
P. maximowiczii: Netherlands.
P. nigra: Netherlands.
P. nigra var. *betulifolia*: Netherlands.
P. nigra var. *elegans*: Netherlands.
P. nigra var. *italica*: Netherlands.
P. × robusta: Netherlands.
P. suaveolens: Netherlands.
P. trichocarpa: Netherlands.
P. tristis: Netherlands.
Tilia × europaea: Denmark.
Ulmus sp.: Netherlands.

Nectria cucurbitula Fr. (xx) **conifer dieback**

Dieback of firs, spruces, and pines originates in an injury to the bark giving entry of the fungus spores to the inner bark tissues. Apparently it is more prevalent in Europe than in North America. Wounds made by hail and insect feeding are especially favorable for fungus development. An area of bark is killed and enlarged until the stem is girdled and the tip killed back. Conifer dieback seems to be limited to North America and Europe.

Abies alba: Denmark, Norway, Scotland.
A. nordmanniana: Norway.
Larix decidua: Germany.
Picea abies: Czechoslovakia, Denmark, Germany, Great Britain.
Pinus cembra: Germany.
P. mugo: Denmark.
P. sylvestris: Norway, Sweden.

Nectria ditissima Tul. (xx) **hardwoods perennial canker**

Many hardwoods are affected by the large perennial canker with greatly swollen, irregular, callused edges; in North America and Europe generally. This canker is known in Brazil, South Africa, Madagascar, and Japan. It is severe on apple and has been called "European apple canker." There is uncertainty, both in Europe and America, as to the correct name for this pathogen.

Acer pseudoplatanus: Denmark.
Aesculus hippocastanum: Denmark.
Albizia lebbek: Madagascar.
Alnus sp.: Norway.
A. glutinosa: Denmark.
Betula sp.: Czechoslovakia.
B. pubescens: Norway.
Carpinus sp.: Czechoslovakia.
C. betulus: Belgium, Denmark.
Corylus avellana: Denmark.
Fagus sylvatica: Belgium, Czechoslovakia, Denmark, Germany, Great Britain, Hungary, Ireland, Japan, Sweden.
Fraxinus sp.: Great Britain, Ireland.
F. excelsior: Denmark, Great Britain.

Juglans sp.: Norway.
Laburnum anagyroides: Denmark.
Platanus orientalis: Denmark.
Populus sp.: Ireland.
P. alba: Denmark.
P. balsamifera: Denmark.
P. × canadensis: Belgium, Italy.
P. tremula: Czechoslovakia.
Quercus sp.: Czechoslovakia.
Q. robur: Denmark.
Salix alba: Denmark.
S. alba var. *vitellina*: Denmark.
Sorbus aucuparia: Denmark.
Tilia sp.: Czechoslovakia.
T. cordata: Denmark.
Ulmus glabra: Denmark.

Nectria dodgeii Heiser (xx) **coffee canker**

A wound parasite of *Coffea* causing canker of stems where the bark was injured by rubbing to remove algae and lichens. It results in dieback of the distal tips. Known in Guatemala and El Salvador.

Coffea arabica var. *maragogipes*: Guatemala.

Nectria galligena Bres. (xx) **hardwoods perennial canker**

See discussion under *Nectria ditissima*. Possibly identical with that species. Distributed in North America, Europe, and Japan.

Acer palmatum: Japan.
A. pseudoplatanus: Germany.
Alnus sp.: Germany.
Betula sp.: Germany.
B. pubescens: Norway.
Carpinus sp.: Germany.
C. betulus: Japan.
Crataegus oxyacantha: Germany.
Fagus sylvatica: Belgium, Denmark, Germany, Japan.
Fraxinus sp.: Great Britain, Norway.
F. bungeana: Japan.
F. excelsior: Netherlands.
Populus × canadensis: Germany, Netherlands.
P. nigra: Germany.
Quercus glandulifera: Japan.
Q. rubra: France.
Salix sp.: Germany, Netherlands.
S. alba: Netherlands.
S. amygdalina: Netherlands.
S. purpurea: Great Britain, Japan.
Sorbus aria: Germany.
Tilia sp.: Netherlands.

Nectria haematococcus (Berk. & Br.) Wr. (xx) **canker**

Associated with stem cankers of young trees of *Tectona* and *Pterospermum*. Distributed in India, Ceylon, Borneo, Mauritius, and Indonesia.

Pterospermum acerifolium: Mauritius.
Tectona grandis: India.

Neopeckia coulteri (Pk.) Sacc. (xx) **pine brown-felt blight**

A snow-mold fungus much like *Herpotrichia nigra*, which see for unusual conditions of occurrence and the general effect on the trees. *Neopeckia coulteri* seems to be limited to pines. The fungus forms a dense, felty growth of brown to blackish mycelium, on which small, black, globular perithecia are scattered. Microscopic examination is needed to distinguish the two fungi. *N. coulteri* is widely distributed in higher mountains in North America, Poland, and Romania.

Pinus mugo var. *pumilio*: Poland, Romania.

Nothoravenelia japonica Diet. (xxx) **rust**

Forms brown rust pustules on leaves of *Securinega* in China, Japan, and Manchuria.

Securinega suffruticosa: China, Japan, Manchuria.

Nummularia regia (de N.) Sacc. (xx) **canker**

A wound parasite forming large, black, thickened crusts under the epidermis of wounded bark on larger stems and branches of hardwoods. Distributed in Portugal.

Castanea sp.: Portugal.

Fagus sylvatica: Portugal.

Platanus sp.: Portugal.

Quercus suber: Portugal.

Nyssopsora cedrelae (Hori) Diet. (xxx) **rust**

Forms rust pustules on leaves of *Spondias* and *Toona* in China, India, and Japan.

Toona serrata: India.

T. sinensis: China, Japan.

Ocellaria ocellata (Fr.) Schroet. (xx) —————

Apparently a weak parasite accompanying and following the active parasite *Fusicladium saliciperda* Tub. on willow leaves and shoots. Distributed in the United States, Denmark, Norway, Finland, Austria, France, and Germany.

Salix myrsinifolia: Norway.

Ochropsora ariae (Fckl.) H. & P. Syd. (xxx) **rust**

Heteroecious. Forms minute, pale yellow rust pustules followed later by brown crustlike fungus mats in the leaves of *Sorbus*. Has the herb, *Anemone nemorosa*, as an alternate host. Distributed in Europe and Formosa.

Sorbus aria: Germany.

S. aucuparia: Denmark, Germany, Norway.

S. torminalis: Germany.

Oidium ceratoniae Comes (xxx) **powdery mildew**

Forms powdery mildew on leaves of *Ceratonia* that may fall prematurely and may weaken the trees. Known in France.

Ceratonia siliqua: France.

Oidium eucalypti Rostr. (xxx) powdery mildew

Forms powdery mildew on leaves of *Eucalyptus* seedlings. Known in Denmark and Italy.

Eucalyptus sp.: Denmark.

E. camaldulensis: Italy.

Oidium heveae Steinm. (xxx) powdery mildew

Forms powdery mildew on leaves of *Hevea*. Known in the Congo, Tanganyika, Ceylon, India, Indochina, Java, and Malaya.

Hevea brasiliensis: Ceylon, Congo, India, Indochina, Java, Malaya, Tanganyika.

H. collina: Java.

H. guianensis: Java.

H. spruceana: Java.

Oidium japonicum H. & P. Syd. (xxx) oak powdery mildew

Forms powdery mildew on leaves of *Quercus* in Japan.

Quercus myrsinaefolia: Japan.

Oidium mangiferae Arth.-Ber. (xxx) mango powdery mildew

Forms powdery mildew on inflorescences of *Mangifera* trees. Known in Florida, California, Jamaica, Guatemala, Tanganyika, and Mauritius; in the latter location in 1948 it was believed to be a recent introduction.

Mangifera indica: Guatemala, Jamaica, Mauritius, Tanganyika.

Olivea capituliformis Arth. (xxx) rust

Forms brown aecial and uredinial rust pustules on leaves of *Alchornea*. Distributed in Puerto Rico, Tortola Island, and Brazil.

Alchornea iricurana: Brazil.

A. latifolia: Puerto Rico.

A. pycnogyne: Brazil.

Olivea petitiæ Arth. (xxx) rust

Forms brown rust pustules on leaves of *Petitia* in Puerto Rico.

Petitia domingensis: Puerto Rico.

Olivea tectonæ (Rac.) Thirum. (xxx) teak rust

Forms brown rust pustules on leaves of *Tectona*. Causes defoliation of seedlings in India and Pakistan.

Tectona grandis: India, Pakistan.

Olpidium brassicæ (Wor.) Dang. (xxx) damping-off

Causes damping-off of young plants, usually of the cabbage family. An instance was noted where it attacked the feeder rootlets of *Populus* in Italy. Such attacks on trees may be more common than is realized.

Populus alba: Italy.

Omphalia campanella (Fr.) Quél. (xx) root rot

A small agaric with pileus central-stemmed, cap 1 to 2 mm. wide, convex campanulate, thin, dull orange to reddish tinged, gills narrow, rigid, yellowish. Grows in dense clusters on decayed coniferous logs

and stumps. Has been found in recent years to be associated with decay of roots and butt rot of coniferous trees. Distributed in North American coniferous forests southward from Canada to Mexico and in the West Indies; also in Europe, Siberia, and India.

Lagerstroemia speciosa: India.

Ophiobolus heveae P. Henn. (xx) leaf spot

Occurs on gray, circular to effuse and confluent spots on leaves of *Hevea* in Brazil.

Hevea brasiliensis: Brazil.

Panellus rupicola (Mass.) Singer (xx) canker

Occurs on cankers of stems of *Cedrus*, 15- to 20-year-old poles dying in groups among healthy neighbors of the same species. Perfect fruiting bodies formed in pure cultures on pine wooden blocks. Known only in India.

Cedrus deodara: India.

Paracapnodium brasiliense (Speg.) Toro (xxx) coffee black spot

Forms black fungus masses scattered over the leaf surface of *Coffea* in Colombia.

Coffea arabica: Colombia.

Parasterina miconiae (Th.) Toro (xxx) black spot

Forms black fungus colonies on the upper surface of leaves of *Miconia*. Known only in Venezuela.

Miconia aeruginosa: Venezuela.

Parasterina mirabilis Toro (xxx) black spot

Occurs in black colonies on the upper surface of leaves of *Eugenia* in Venezuela.

Eugenia puniceaefolia: Venezuela.

Parasterina montagnei Toro (xxx) black spot

Similar to *Parasterina miconiae*, which see. Known on *Miconia* in Venezuela.

Miconia aeruginosa: Venezuela.

Parasterina venezuelana (Syd.) Toro (xxx) black spot

Similar to *Parasterina miconiae*, which see. Known on *Miconia* in Venezuela.

Miconia sp.: Venezuela.

Pellicularia filamentosa (Pat.) Rogers (xxx) web blight

Fruiting body a pale buff to cream color; effused, cobwebby, thin perforate membrane around the host stem at the soil surface, spore surface smooth. Commonly living on dead roots and plant remains mixed with the soil. Often parasitic on roots and stems of herbaceous plants and young tree seedlings causing considerable damage. Distributed widely in Canada and the United States, West Indies,

Central and South America, Europe, Africa, India, Japan, Malaya, Philippines, and Australia.

Abies alba: Switzerland.

Aleurites montana: Indochina.

Altingia excelsa: Java.

Chamaecyparis obtusa: Japan.

Cinchona officinalis: Peru.

C. pubescens: Peru, Philippines.

Clerodendrum speciosissimum: Gold Coast.

Coffea arabica: El Salvador, Jamaica, Tanganyika.

Cryptomeria japonica: Japan.

Dalbergia sissoo: India.

Eucalyptus sp.: Japan.

Hevea benthamiana: Costa Rica.

H. brasiliensis: Bolivia, Brazil, Ceylon, Colombia, Costa Rica, Honduras, Peru.

H. guianensis var. *lutea*: Peru.

Larix leptolepis: Belgium, Japan.

Lonchocarpus utilis: Peru.

Murraya koenigii: India.

Olea laurifolia: Union of South Africa.

Picea abies: Belgium, Norway, Switzerland.

P. glehnii: Japan.

Pinus sp.: Argentina.

P. densiflora: Japan.

P. khasya: Philippines.

P. nigra var. *poiretiana*: Belgium.

P. sylvestris: Belgium, Great Britain, Norway.

P. thunbergii: Japan.

Pseudotsuga menziesii: Belgium.

Quercus sp.: Great Britain.

Robinia pseudoacacia: Japan.

Theobroma cacao: Gold Coast.

***Pellicularia koleroga* Cke. (xxx)**

thread blight

Causes bark lesions on branches, and leaf blight by superficial fungus strands creeping over the surface in very moist locations. Apparently limited to warmer temperate and tropical climates both East and West. Known in the southern United States, Central America, West Indies, South America, Africa, India, East Indies, New Caledonia, and New Guinea.

Areca cathecu: Argentina.

Canthium praviflorum: India.

Cinchona officinalis: Guatemala, Peru.

Coffea arabica: Colombia, Costa Rica, Guatemala, India, Ivory Coast, Jamaica, Madagascar, New Caledonia, Peru, Puerto Rico, Venezuela.

Cola nitida: Ivory Coast.

Dendrocalamus sp.: India.

Eugenia cumini: Brazil.

Garcinia mangostana: Argentina.

Hevea brasiliensis: Argentina, East Indies.

Ilex paraguariensis: Argentina.

Lawsonia inermis: India.

Mangifera indica: Brazil.

Theobroma cacao: Brazil, Congo, Ivory Coast.

Pellicularia rolfsii (Curzi) West (xxx) **seedling blight**

Causes root-crown rot of many kinds of seedling trees in warmer climates. Distributed in southern United States, Mexico, El Salvador, Argentina, Brazil, Peru, Italy, Congo, Gold Coast, Mauritius, Senegal, Uganda, China, Ceylon, India, Japan, Philippines, Malaya and Australia.

Aleurites montana: Ceylon.

Artocarpus heterophyllus: Ceylon.

Barringtonia speciosa: Philippines.

Bauhinia variegata var. *candida*: Gold Coast.

Berrya cordifolia: Philippines.

Brachychiton populneum: Argentina.

Cananga odorata: Philippines.

Casuarina equisetifolia: Philippines.

Cinchona officinalis: Peru.

Hevea brasiliensis: East Indies.

Persea americana: El Salvador.

Pterocarpus indicus: Philippines.

Sindora sp.: Philippines.

Spathodea campanulata: Philippines.

Swietenia mahagoni: Philippines.

Terminalia catappa: Philippines.

Pericladium grewiae Pass. (xxx) **smut**

Forms crowded cinnamon-brown fungus pustules appearing like mustard seed enclosed by a hard woody covering, 1 to 2 mm. in diameter, forming a long crack with 2 or 3 locules and setting free a brown-black powdery sporemass. On petioles and stems of *Grewia*. Known in India and Abyssinia; also in South Africa on *Piper* under the name *Xylosorium piperii* Zundel.

Grewia villosa: Abyssinia, India.

Pericladium tiliacearum Mundk. & Thirum. (xxx) **smut**

A second smut attacking woody plants. See description under *Pericladium grewiae*. Known in India on *Grewia*.

Grewia rotundifolia: India.

G. tiliæfolia: India.

Periconia heveae Stevenson & Imle (xxx) **blight**

Forms fungus pustules and causes severe spotting of leaves, petioles, and twigs of *Hevea* leading to defoliation. Known in Mexico, Costa Rica, and Brazil.

Hevea benthamiana: Costa Rica.

H. brasiliensis: Brazil, Costa Rica, Mexico.

H. guianensis: Costa Rica.

H. spruceana: Costa Rica.

Peridermium cedri (Barcl.) Sacc. (xxx) **needle rust**

Autoecious. Forms golden-yellow rust pustules on needles of *Cedrus*. Produces witches'-brooms and probably lives over winter in perennial leaves. Considerable damage is caused, even to death of some trees. Known in India and Pakistan.

Cedrus deodara: India, Pakistan.

Peridermium guatemalense Arth. & Kern (xxx) **pine needle rust**

Forms numerous amphigenous rust pustules on needles of *Pinus*, erumpent in longitudinal slits. Distributed in central Florida, southern Mexico, and Guatemala.

Pinus montezumae: Guatemala.

Peridermium kurilense Diet. (xxx) **blister rust**

Occurs on fusoid swellings of twigs of *Pinus* in Kurile Islands.

Pinus pumila: Kurile Islands.

Peridermium mexicanum Arth. & Kern (xxx) **pine gall rust**

Forms rounded, woody, 3 to 7 cm. galls on stems, with pale yellow blisters containing powdery yellowish spores breaking out of the bark. On *Pinus* in Mexico.

Pinus oocarpa: Mexico.

P. patula: Mexico.

Peridermium montezumae Cumm. (xxx) **pine needle rust**

Forms needle rust on *Pinus* in Guatemala and Honduras.

Pinus montezumae: Guatemala.

Peridermium piceae-hondoensis Diet. (xxx) **spruce leaf rust**

Forms rust on needles of *Picea* in Japan.

Picea jezoensis var. *hondoensis*: Japan.

Peridermium pini-thunbergii Diet. (xxx) **pine leaf rust**

Forms powdery yellow rust pustules on needles of *Pinus* in Japan.

Pinus thunbergii: Japan.

Peridermium praelongum Syd. (xxx) **pine leaf rust**

Forms rust pustules on needles of *Pinus* in Japan.

Pinus thunbergii: Japan.

Peridermium thomsoni Berk. (xxx) **spruce leaf rust**

Forms rust pustules on needles of *Picea* in India and Pakistan.

Picea smithiana: India, Pakistan.

Pestalotia banksiana Cav. (x) **leaf blight**

Forms conidial pustules in clusters of hyphae, usually gray in color. The conidia are fusiform with 3 or more septa and 2 or more setae on the apical cell. Associated with leaf blight of *Grevillea* in India.

Grevillea robusta: India.

Pestalotia chamaecyparidis Saw. (xx) seedling blight

See *Pestalotia banksiana* for general appearance. A wound parasite on young seedlings of *Chamaecyparis* causing blight. Known in Japan.

Chamaecyparis obtusa: Japan.

Pestalotia clavispora Atk. (xx) oak leaf blight

Forms fungus pustules on leaves of *Quercus*. Conidia 5-celled with 3 to 4 setae on the apical cell. Distributed in Alabama and India.

Quercus leucotrichophora: India.

Pestalotia dictaeta Speg. (xx) leaf blight

Occurs on spots on leaves of *Aleurites*. Causes premature defoliation in severe attacks. Conidia 5-celled with 2 apical setae. Known in French Equatorial Africa and Argentina.

Aleurites fordii: French Equatorial Africa.

A. montana: French Equatorial Africa.

Pestalotia funerea Desm. (xx) blight

See general account under *Pestalotia banksiana*. Associated with blight of leaves of various conifers and hardwoods. Spores 5-celled with 3 to 5 setae. Either there are numerous misidentifications of this fungus or there are strains varying considerably in their ability to attack living plants. High humidity seems necessary for successful inoculations to be made. Distributed very widely over the world. Specifically in North America, West Indies, Europe, Kenya, Union of South Africa, India, Japan, Philippines, and New Zealand.

Casuarina leptoclada: Union of South Africa.

Chamaecyparis obtusa: Japan.

C. pisifera f. *plumosa*: Denmark.

C. pisifera f. *squarrosa*: Denmark.

Chrysobalanus icaco: Puerto Rico.

Clusia rosea: Puerto Rico.

Cryptomeria japonica: Denmark.

Cunninghamia lanceolata: India.

Cupressus lusitanica: Union of South Africa.

C. macrocarpa: Kenya.

C. sempervirens: India.

Ginkgo biloba: Germany.

Inga vera: Puerto Rico.

Juniperus bermudiana: Bermuda.

J. squamata: Denmark.

Mangifera indica: Jamaica.

Pinus canariensis: Union of South Africa.

P. massoniana: Union of South Africa.

P. pinaster: Union of South Africa.

P. roxburghii: Union of South Africa.

Pithecellobium unguis-cati: Puerto Rico.

Podocarpus falcatus: Jamaica.

Thuja orientalis: Denmark.

T. standishii: Germany.

Pestalotia hartigii Tub. (x)

stem girdle

See general account under *Pestalotia banksiana*. Found usually on nursery plants, the stems being girdled near the ground but continuing to grow above the constrictions. Apparently no successful inoculations have been made. It has been suggested that stem girdle is primarily due to high surface soil temperatures, but this is disputed where mulch was used for winter protection. The spores are 4-celled with 2 to 3 setae. Affects both conifers and hardwoods. Distributed in Oregon, most of Europe, and reported doubtfully in South Africa. Said to have caused much damage in Germany to natural beech reproduction, but the initial injury evidently was sunscald.

Abies alba: Denmark, Germany, Poland.

Fagus sylvatica: Belgium, Denmark, France, Germany, Poland.

Fraxinus excelsior: Germany.

Olea laurifolia: Union of South Africa.

Picea abies: Denmark, Germany, Norway, Poland.

P. glauca: Denmark.

Pinus mugo: Denmark.

P. sylvestris: Norway, Poland, Sweden.

Pestalotia japonica Syd. (xx)

blight

See general account under *Pestalotia banksiana*. Conidia 5-celled with 3 to 4 setae. Occurs on dead brown marginal areas on living leaves of *Toona* in Japan.

Toona sinensis: Japan.

Pestalotia lawsoniae Mund. & Kheswalla (xx)

leaf blight

Occurs on numerous circular spots, some coalescing into whitish to light brown patches. Spore pustules black, subepidermal, erumpent, minute. Conidia 5-celled, fusoid, constricted at the septa, three median cells olivaceous, setae 2 and widely divergent. On leaves of *Lawsonia* in India.

Lawsonia inermis: India.

Pestalotia lucumae Tehon (x)

leaf blight

Associated with black leaf spots, 2 to 5 mm. across. Forms fungus pustules, erumpent, white to gray, 0.5 to 2 mm. in diameter. Conidia 4-septate, slightly constricted. On leaves of *Pouteria* in Puerto Rico.

Pouteria multiflora: Puerto Rico.

Pestalotia micheneri Guba (x)

leaf spot

Forms fungus pustules on leaves of *Araucaria*. Conidia 5-celled, narrowly fusoid, tapering at both ends, median cells dilutely olivaceous, with 3 erect setae. Distributed in Pennsylvania and in India.

Araucaria sp.: India.

Pestalotia molleriana Thuem. (xx)

leaf spot

Forms fungus pustules on spots 1 to 2 cm. across, chestnut colored with red edges, on *Eucalyptus* leaves. Conidia fusiform, 4-septate, with 2 to 3 setae. Distributed in Portugal, France, and Uruguay.

Eucalyptus obliqua: Uruguay.

Pestalotia palmarum Cke. (xx)**palm leaf spot**

Associated with pale, dead patches with definite reddish-brown edges, on leaves of numerous palms. Conidia fusiform, 5-celled, with 2 or 3 apical setae, often knobbed. A wound parasite that has been found causing infection also through the stomata. Distributed in Pennsylvania and Florida, West Indies, Central America, Colombia, Italy, widely in Africa, Asia, and Pacific Islands.

Acrocomia aculeata: Puerto Rico.

Areca cathecu: India, Puerto Rico.

Borassus flabellifer: India, Pakistan.

Cocos nucifera: Andaman Islands, Ceylon, Colombia, East Indies, El Salvador, Gold Coast, India, Indochina, Jamaica, Malaya, Mauritius, Mozambique, New Guinea, Puerto Rico, Seychelles, Siam, Tanganyika.

Elaeis guineensis: Congo.

Phoenix canariensis: Italy.

P. reclinata: Puerto Rico.

P. sylvestris: India.

Pestalotia populi-nigrae Saw. & Ito (xx)**shoot blight**

Associated with severe wilt of current-year shoots of *Populus nigra* planted as windbreaks and shelterbelts. Well-defined brown lesions form on shoots and leaves on the diseased bark die. The disease spreads rapidly in infected stems, often girdling and killing them. Losses may be quite heavy. Inoculations made with wounds were successful, but not without wounds. Distributed in Japan.

Populus maximowiczii: Japan.

P. nigra: Japan.

P. simonii: Japan.

Pestalotia shiraiana P. Henn. (xx)**needle blight**

A wound parasite entering wounded needles and causing needle blight of seedlings, cuttings, and old trees of *Cryptomeria*. Known in Japan.

Cryptomeria japonica: Japan.

Pezicula carpinea (Fr.) Tul. (xx)**canker**

A tiny, yellowish, shallow, cuplike fungus growing in crowded groups on diseased bark of *Carpinus*. It has been proved to be an active wound parasite on trees of all ages. Distributed in eastern North America and in Europe where it is reported destructive to 70- and 80-year-old trees.

Carpinus betulus: Germany.

Pezicula livida (Berk. & Br.) Rehm (xx)**canker**

A small, cuplike fungus growing on diseased bark of *Abies*, *Picea*, and *Pinus* weakened by drought, frost, etc. Distributed in North America and Europe.

Abies alba: Germany.

Picea abies: Germany.

P. sitchensis: Great Britain.

Phacidiopycnis pseudotsugae (M. Wils.) Hahn (xx)**conifer canker**

Forms abundant fungus pustules on dead areas of bark of numerous conifers. Saprophytic and parasitic in Northeastern United States, Western Europe, and New Zealand. The ascogenous fungus *Phacidiella coniferarum* Hahn, known only in Maine, has been connected culturally with this imperfect fungus. In the absence of the perfect stage in foreign countries, it is believed best to use the name *Phacidiopycnis pseudotsugae* to avoid confusion until the ascogenous stage is discovered there.

It has been proved that the two species *Phomopsis pseudotsugae* Wilson and *P. strobi* Syd. are synonymous with *Phacidiopycnis pseudotsugae*.

Abies alba: Great Britain to Czechoslovakia.

Cedrus atlantica: Great Britain to Czechoslovakia.

C. deodara: Great Britain to Czechoslovakia.

C. libanensis: Great Britain, Europe.

Larix decidua: Great Britain to Czechoslovakia.

L. leptolepis: Czechoslovakia, Germany, Great Britain, Netherlands, Norway, Sweden.

L. sibirica: Great Britain to Czechoslovakia.

Picea abies: Sweden.

Pinus canariensis: New Zealand.

P. mugo: Europe.

P. muricata: New Zealand.

P. radiata: New Zealand.

Pseudolarix amabilis: Europe.

Tsuga sieboldii: Great Britain to Czechoslovakia.

Phacidium infestans Karst. (x)**conifer snow blight**

Form small, subepidermal, discoid, black perithecia on the lower side of needles of conifers. These are followed by small, black sclerotia. Needles of all ages may be infected under snow covering them late in spring and leading to high humidity and cool but not freezing temperatures under the snow. Distributed in North America and Europe.

Juniperus sabina: Sweden.

Picea abies: Sweden.

Pinus cembra: Sweden.

P. mugo var. *rostrata*: Norway.

P. nigra: Sweden.

P. sylvestris: Finland, Norway, Sweden.

Phaeocryptopus nudus (Pk.) Petr. (xx)**fir leaf cast**

Associated with needle cast on *Abies*. Distributed in North America from New Brunswick and Ontario southward to North Carolina. Also in the British Isles, Russia, Switzerland, and Siberia.

Abies alba: Great Britain, Switzerland.

A. sibirica: Russia, Siberia.

Phaeosaccardinula seaveriana Toro (x)**black mildew**

Forms effuse, cinereous-olive fungus webs over the entire upper surface of leaves of *Erythrina* in Puerto Rico.

Erythrina glauca: Puerto Rico.

Phakopsora cheoana Cumm. (xxx) rust

Forms brown rust pustules on leaves of *Toona* in China.

Toona sinensis: China.

Phakopsora malloti Cumm. (xxx) rust

Forms brown rust pustules on leaves of *Mallotus* in China.

Mallotus sp.: China.

Phleospora aceris (Lib.) Sacc. (x) maple leaf spot

Associated with spots of leaves and cotyledons of seedlings of *Acer*. Destructive to young seedlings. Distributed in North America and Europe.

Acer campestre: Great Britain.

A. pseudoplatanus: Great Britain.

Phleospora multimaculans Heald & Wolf (xxx) leaf spot

Forms minute chestnut-colored spots on leaves of *Juglans* often over the entire leaf surface. In nurseries it causes much defoliation. Known in Texas and Argentina.

Juglans nigra: Argentina.

Phleospora parcissima Hoehn. (xxx) leaf spot

Associated with rounded brown spots on leaves of *Aesculus*. Known in Austria and Germany.

Aesculus hippocastanum: Austria.

Phleospora platanoidis Kab. & Bub. (xx) maple leaf spot

Occurs on small, roundish, ochraceous spots, about 2 mm. wide on leaves of *Acer* in Europe.

Acer platanoides: Great Britain.

A. platanoides f. *rubrum*: Czechoslovakia.

Phleospora pseudoplatani Bub. (xx) leaf spot

Occurs on very small red or brown spots, on leaves and cotyledons of *Acer*. Distributed in North America and Europe.

Acer platanoides: Denmark.

A. pseudoplatanus: Czechoslovakia.

Phlyctaena cinchonae Vincens (xx) leaf spot

Conidial pustules are associated with roughened, cankered areas on bark of *Cinchona* branches in Indochina.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Pholiota adiposa (Fr.) Qué. (xx) trunk rot

Forms umbrella-shaped fruiting bodies, yellow, viscid, 3 to 12 cm. across, with ferruginous scales above, fleshy, with a yellow ring on the stem and ferruginous spores. A wound parasite entering the trunk through frost cracks and dead branch stubs, and causing a brown mottled heart rot of the white-rot type in broad-leaved and coniferous trees. Distributed in North America, Europe, Japan, and New Zealand.

Abies alba: Germany.

Fagus sylvatica: Germany.

Pholiota aegerita (Brig.) Quél. (xx) heart rot

Associated with root rot of *Populus* in Europe. See *Pholiota adiposa* for shape, size, and general appearance. A wound parasite infecting wood and pith. Known in the Great Lakes States of North America and in France and Italy.

Populus deltoides: Italy.

Pholiota aurivella (Fr.) Quél. (xx) heart rot

See *Pholiota adiposa* for general appearance. A wound parasite causing serious decay of wood in living trees, both deciduous and coniferous. Distributed in Canada, the United States, Europe, and India.

Abies alba: Yugoslavia.

Fagus sylvatica: Yugoslavia.

Fraxinus sp.: Yugoslavia.

Pholiota destruens (Brond.) Gill. (xx) heart rot

A wound parasite of the common agaric shape, pallid to wood-brown, with large, white, floccose patches and fibrillose scales. On *Populus*, *Betula*, *Fagus*, *Salix*, and *Larix* causing heart rot. Distributed in Canada, United States of America, and Europe.

Betula sp.: Great Britain.

Larix gmelinii: Russia.

Populus sp.: Great Britain, Netherlands.

Salix sp.: Great Britain.

Phoma cinchonae Vincens (xx) leaf spot

Forms erumpent subepidermal pustules associated with dying of young plants of *Cinchona* in Indochina.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Phoma cryptomeriae Kawamura (xx) needle blight

Conidial pustules are associated with needle blight of *Cryptomeria* seedlings, cuttings and old trees. It is a wound parasite. Known in Japan.

Cryptomeria japonica: Japan.

Phoma strobiligena Desm. (xx) cone necrosis

Conidial pustules are immersed in necrotic spots on green cones of conifers. Distributed widely in the United States and Europe.

Pinus cembra var. *sibirica*: Russia.

P. griffithii: Great Britain (Kew).

P. sylvestris: Great Britain (Kew).

Phomopsis abietina (Hartig) Wilson & Hahn (xx) fir canker

A fungus that causes girdling canker of *Abies* and kills branches and stems of young trees. Distributed in Europe, not in North America. Earlier entry concerning this fungus in Agriculture Handbook No. 100, p. 30, 1956, is in error in listing *Juniperus virginiana* and *Pseudotsuga menziesii* as hosts and in stating that this fungus is in North America.

Abies alba: Czechoslovakia, Denmark, France, Germany, Great Britain, Switzerland.

Phomopsis cinerescens (Sacc.) Trav. (xx) **canker**

Associated with large cankers on branches of *Ficus* girdling and killing them. Distributed in Maryland, Europe, and Brazil.

Ficus sp.: Brazil.

F. carica: France, Italy.

Phomopsis heveae (Petch) Boed. (xx) **seedling dieback**

Causes dieback of *Hevea* seedlings. Pathogenic to unthrifty plants in Java.

Hevea brasiliensis: Java.

Phomopsis juniperovora Hahn (xxx) **juniper and cypress blight**

Blight of junipers and cypress species in seed and transplant beds is serious from the Middle West to the Atlantic coast in the United States. Losses may be very high. Resinous cankers of the stems cause death of affected branches and trees. It is also reported but not confirmed in New Zealand, Mozambique, Netherlands, France, and Denmark.

Cryptomeria japonica: Mozambique.

Juniperus sp.: Netherlands.

Thuja sp.: Netherlands.

Phomopsis oncostoma (Thuem.) Hoehn. (x) **bark necrosis**

Associated with necrosis of bark and cambium, and wilting of leaves of *Robinia*. Inoculations showed pathologic action, more intense on weakened trees than on vigorous ones. Distributed in Eastern United States and in Europe.

Robinia pseudoacacia: Italy.

Phomopsis salicina (Westd.) Died. (xx)

Associated with death of stems and branches of *Salix* in the United States and Europe.

Salix alba: Great Britain.

S. caprea: Great Britain.

S. viminalis: Great Britain.

Phragmidiella africana Cum. (xxx) **rust**

Forms cinnamon-brown, minute, powdery rust pustules on the lower surface of leaves of *Stereospermum* in Sierra Leone and Uganda.

Stereospermum acuminatissimum: Sierra Leone.

S. junthianum: Uganda.

Phragmidiella heterophragmae Mund & Thirum. (xxx) **rust**

Forms rust pustules on leaves of *Heterophragma* in India.

Heterophragma roxburghii: India.

Phragmidiella markhamiae P. Henn. (xxx) **rust**

Forms brown rust pustules on leaves of *Markhamia* in Tanganyika.

Markhamia sansibarica: Tanganyika (Usambara).

Phragmocauma kolowratiae Syd. (xx) **black spot**

Forms black somewhat convex fungoid spots on leaves of *Kolowratia* in the Philippines.

Kolowratia elegans: Philippines.

Phyllachora aberiae P. Henn. (xxx) **black spot**

Forms black cushionlike fungus masses about 1 mm. in diameter on both sides of leaves of *Dovyalis* in the Transvaal.

Dovyalis caffra: Transvaal.

Phyllachora acaciae P. Henn. (xxx) **black spot**

Forms small, circular, shiny-black spots on both sides of leaves of *Acacia*. Distributed in Mexico, West Indies, Ecuador, and Venezuela.

Acacia acuiifera: Bahamas.

A. amentacea: Mexico.

A. choriophylla: Bahamas.

A. farnesiana: Puerto Rico, Cuba, Ecuador.

A. macracantha: Venezuela.

A. unijuga: Mexico.

Phyllachora afzeliae Syd. (xxx) **black spot**

Forms shining, black, convex spots on leaves of *Intsia* on Guam and in the Philippines.

Intsia bijuga: Guam, Philippines.

Phyllachora balansae Speg. (xxx) **black spot**

Forms small, shiny-black, fungus cushions on leaf spots 0.5 to 2 cm. across on *Cedrela*. Distributed in Argentina, Brazil, Venezuela, and Puerto Rico.

Cedrela mexicana: Brazil, Puerto Rico, Venezuela.

Phyllachora biareolata Speg. (xxx) **black spot**

Forms black cushionlike fungus masses on circular brown leaf spots on *Eugenia*. Distributed in Argentina, Brazil, and St. Croix Island.

Eugenia rhombea: Virgin Islands (St. Croix).

Phyllachora canarii P. Henn. (xxx) **black spot**

Forms fungus mats, black, rounded, 1.5 to 2.5 mm. across, on both sides of *Canarium* leaves in the Philippines.

Canarium laciniatum: Philippines.

C. luzonicum: Philippines.

C. perkinsiae: Philippines.

C. villosum: Philippines.

Phyllachora catervaria (Berk.) Sacc. (xxx) **black spot**

Forms round, black, cushionlike fungus masses on leaves of *Ficus*. Distributed in India, Pakistan, Philippines, Java, and Amboina.

Ficus hispida: Pakistan, India.

F. merrillii: Philippines.

Phyllachora elmeri Syd. (xxx) **black spot**

Forms black fungus masses on *Ficus* leaves in the Philippines.

Ficus blepharostoma: Philippines.

F. manilensis: Philippines.

F. minahassae: Philippines.

F. ulmifolia: Philippines.

Phyllachora eugeniae Chardon (xxx) **black spot**

Forms black fungus bodies on both sides of leaves of *Eugenia* in Puerto Rico.

Eugenia rhombea: Puerto Rico.

Phyllachora genipae F. L. Stevens & Dalbey (xxx) **black spot**

Forms black spots on *Genipa* leaves in Puerto Rico.

Genipa americana: Puerto Rico.

Phyllachora gratissima Rehm (xxx) **black spot**

Forms black fungus bodies on red-brown leaf spots on *Persea*. Sometimes causes defoliation. Distributed in Costa Rica, Guatemala, West Indies, Colombia, Ecuador, and Venezuela.

Persea americana: Colombia, Dominican Republic, Guatemala, Jamaica, Puerto Rico, Venezuela.

Phyllachora hakeae P. Henn. (xxx) **black spot**

Forms black fungus bodies on both leaf surfaces of *Hakea* in Australia.

Hakea myrtilloides: Australia.

Phyllachora inclusa (Berk. & Curt.) Sacc. (xxx) **black spot**

Forms small black cushionlike fungus bodies on both sides of leaves of *Jacquinia*. Distributed in Puerto Rico, Guatemala, Nicaragua, and Paraguay.

Jacquinia berterii: Puerto Rico.

Phyllachora lactea Th. & Syd. (xxx) **black spot**

Forms black fungus bodies on red-brown spots on *Dalbergia* leaves in Tanganyika and the Gold Coast.

Dalbergia saxatilis: Gold Coast.

Phyllachora laurinearum Rac. (xxx) **black spot**

Forms rounded, black, fungus masses on leaves of *Litsea* in Java.

Litsea chrysocoma: Java.

L. tetranthera: Java.

Phyllachora lepida Syd. (xxx) **black spot**

Forms black fungus bodies on leaves of *Litsea* in the Philippines.

Litsea tayabensis: Philippines.

Phyllachora litseae Koord. (xxx) **black spot**

Forms black cushionlike fungus bodies on indefinite yellowish spots on leaves of *Litsea* and *Nectandra* in Java and Colombia.

Litsea polyantha: Java.

Nectandra glabrescens: Colombia.

Phyllachora machaeriicola (P. Henn.) Th. & Syd. (xxx) **black spot**

Forms tar spot of leaves of *Machaerium*. Known in Colombia and Venezuela.

Machaerium humboldtianum: Colombia, Venezuela.

M. moritzianum: Venezuela.

M. robiniaefolium: Venezuela.

Phyllachora maprouneae P. Henn. (xxx) **black spot**

Forms black tar spot on yellowish to violet leaf spots on *Maprounea* in Peru.

Maprounea surinamensis: Peru.

Phyllachora miconiicola Speg. (xxx) **black spot**

Forms tar spot on *Miconia* leaves in Costa Rica.

Miconia sp.: Costa Rica.

Phyllachora mulleri Chardon (xxx) **black spot**

Forms amphigenous shiny-black fungus colonies 1.5 to 3 mm. in diameter with numerous spore-bearing cavities on *Eugenia* in Brazil.

Eugenia dodonaefolia: Brazil.

Phyllachora nectandrae F. L. Stevens & Dalbey (xxx) **black spot**

Forms shiny, black, cushionlike fungus masses on brown spots on the upper surface of *Nectandra* leaves. Known in Puerto Rico and St. Thomas in the Virgin Islands.

Nectandra coriacea: Virgin Islands (St. Thomas).

N. patens: Puerto Rico.

Phyllachora oblongispora Syd. (xxx) **black spot**

Forms black spots on living leaves of *Dipterocarpus* in the Philippines.

Dipterocarpus hasseltii: Philippines.

D. subalpinus: Philippines.

Phyllachora ocoteicola F. L. Stevens & Dalbey (xxx) **black spot**

Forms black spots, 2 to 4 mm. across, with fungus pustules on leaves of *Ocotea* in Puerto Rico and Dominican Republic.

Ocotea sp.: Dominican Republic.

O. leucoxydon: Puerto Rico.

Phyllachora panamensis Chardon (xxx) **black spot**

Forms shiny black spots, convex, scattered, coalescing in groups of 3 to 5 on the lower leaf surface. On *Bauhinia* and *Rourea*. Known in Venezuela and Dominican Republic.

Bauhinia cumanensis: Venezuela.

Rourea glabra: Dominican Republic.

Phyllachora parkiae P. Henn. (xxx) **black spot**

Forms shiny black fungus spots on yellowish leaf spots on leaves of *Parkia* in the Philippines.

Parkia javanica: Philippines.

Phyllachora perforans (Rehm) Sacc. & Syd. (xxx) **black spot**

Forms black spots on leaves of *Abrus* and *Dalbergia*. Known in Puerto Rico and Brazil.

Abrus praecatorius: Puerto Rico.

Phyllachora pseudos Rehm (xxx) **black spot**

Forms black fungus growths with spore pustules on leaves of *Ficus* in the Philippines.

Ficus nota: Philippines.

Phyllachora roystoneae Johnston & Bruner (xxx) **black spot**

Forms conspicuous black carbonaceous fungus growths on midribs of leaves of *Roystonea* in Cuba.

Roystonea regia: Cuba.

Phyllactinia fraxini (DC.) Homma (xxx) **powdery mildew**

Macroscopically similar to *Phyllactinia guttata*, which see. The two fungi can be identified only microscopically. *P. fraxini* attacks the leaves of *Alnus*, *Fraxinus*, *Juglans*, and *Magnolia*. Known in eastern Siberia, Japan, and China.

Alnus cremastogyne: China.

A. japonica: Japan.

Fraxinus championii: China.

F. chinensis: China.

F. mandshurica: Siberia.

Juglans ailantifolia: Japan.

Magnolia kobus: Japan.

M. obovata: Japan.

M. stellata: Japan.

Phyllactinia guttata (Fr.) Lév. (xxx) **powdery mildew**

Forms a white, powdery coating with minute, globular, dark-colored perithecia scattered over the white fungus weft. On the lower leaf surface of many broadleaf trees in the North Temperate Zone, resulting in defoliation. Distributed generally in North America, Europe, and Asia. Reported also in Argentina and Madagascar.

Ailanthus altissima: China.

Alangium platanifolium: China.

Alnus cremastogyne: China.

A. formosana: Formosa.

A. glutinosa: Poland.

A. incana: Denmark, Japan, Norway, Poland.

A. japonica: Japan.

A. maritima: Japan.

A. nepalensis: China.

Amelanchier asiatica: Japan.

Betula pendula: Denmark, Norway, Poland.

B. pubescens: Denmark, Japan, Norway.

Broussonetia kazinoki: Japan.

B. papyrifera: China, Japan.

Carpinus betulus: Denmark.

Castanea crenata: Japan.

- C. mollissima*: China.
Cedrela macrocarpa: China.
Corylus avellana: Denmark, France, Norway, Poland.
Crataegus monogyna: Poland.
Diospyros kaki: China, Japan.
D. lotus: China.
Fagus sylvatica: Denmark, Germany, Norway.
Firmiana platanifolia: China.
Fraxinus excelsior: Denmark, France, Norway, Poland.
F. mandshurica: Japan.
F. ornus: Denmark.
Gleditsia sinensis: China.
Hamamelis japonica: Japan.
Juglans regia: India.
Kalopanax pictus: China.
Lindera sp.: China.
Magnolia denudata: Japan.
M. kobus: Japan.
Melia azedarach: China.
Morus sp.: Indochina.
M. alba: China, India, Japan, Pakistan, Russia.
M. australis: China.
Paulownia tomentosa: Japan.
Picrasma quassioides: Japan.
Populus tomentosa: China.
Pterocarya stenoptera: China.
Pyracantha sp.: China.
Quercus aliena: China.
Sorbus aucuparia: Norway.
Tectona grandis: India.
Toona sinensis: China.

Phyllactinia moricola (P. Henn.) Homma (xxx) powdery mildew

A segregate from *Phyllactinia guttata* apparently limited to *Morus* spp. as hosts. Distributed in Formosa, China, and Japan.

- Morus alba*: China.
M. alba var. *multicaulis*: Japan.
M. argutidens: Japan.
M. australis: China, Japan.

Phyllactinia salmonii Blumer (xxx) powdery mildew

Forms powdery mildew coating on leaves of *Actinidia* and *Paulownia* in China.

- Paulownia tomentosa*: China.

Phyllosticta aceris Sacc. (xxx) maple leaf spot

Forms pale yellow spots bearing pycnidia, on leaves of *Acer*. Distributed in France, Denmark, Great Britain, Italy, and Russia.

- Acer campestre*: Great Britain.
A. platanoides: Russia.

Phyllosticta aesculana Oud. (xxx) leaf spot

Forms pycnidia on leaf spots on *Aesculus* in Netherlands.

- Aesculus hippocastanum*: Netherlands.

Phyllosticta aleuritidis Saccas & Drouillon (xxx) **tung leaf spot**

Associated with large necrotic spots killing the leaves of *Aleurites*. Very serious damage is caused. Known in French Equatorial Africa.
Aleurites fordii: French Equatorial Africa.

Phyllosticta alnea Oud. (xxx) **alder leaf spot**

Occurs on pale rust-colored spots on leaves of *Alnus* in the Netherlands. Also reported in Alaska.
Alnus glutinosa: Netherlands.

Phyllosticta alnigena Theum. (xxx) **leaf spot**

Occurs on large, ochraceous, concentrically zoned spots on leaves of *Alnus*. Distributed in Italy, Portugal, and Estonia.
Alnus sp.: Estonia.

Phyllosticta alnipерda Oud. (xxx) **leaf spot**

Associated with brown spots with black margins on leaves in the Netherlands.
Alnus glutinosa: Netherlands.

Phyllosticta aquifolina Grove (xxx) **holly leaf spot**

Occurs on small spots 1 to 3 mm. across, grayish with a dark brown border, on leaves of *Ilex* in Great Britain.
Ilex aquifolium: Great Britain (Kew).

Phyllosticta arbuti (Desm.) Sacc. (xxx) **leaf spot**

Associated with small fuliginous spots on leaves. Known in France and Great Britain.
Arbutus unedo: Great Britain.

Phyllosticta associata Bub. (xxx) **oak leaf spot**

Forms small 0.5 to 1 mm. angular brown spots limited by veins, on leaves in Bohemia.
Quercus robur: Czechoslovakia.

Phyllosticta azevinhi Torrend (xxx) **leaf spot**

Occurs on purple-brown spots on leaves of *Ilex* on Madeira Island.
Ilex azevinho: Portugal (Madeira Island).

Phyllosticta bauhiniae Cke. (xxx) **leaf spot**

Associated with irregular brown spots on leaves of *Bauhinia* in Venezuela and India.
Bauhinia purpurea: India.

Phyllosticta bauhnicola P. Henn. (xxx) **leaf spot**

Occurs on circular dark fuscous spots on leaves of *Bauhinia* in Brazil.
Bauhinia sp.: Brazil (Sao Paulo).

Phyllosticta bellunensis Mart. (xxx) elm leaf spot

Associated with large brown spots on leaves of *Ulmus*. Distributed in Italy, Poland, Russia, and Great Britain.

Ulmus sp.: Great Britain.

U. laevis: Russia (Kazan).

Phyllosticta betulina Sacc. (xxx) birch leaf blight

Not associated with leaf spots, but widely scattered over the surface of living and dying leaves of *Betula*. Distributed in New York and Oklahoma; and in France, Great Britain, Germany, Italy, and Latvia.

Betula sp.: Great Britain.

Phyllosticta bixina E. Young (xxx) leaf spot

Occurs on pale yellow spots with purplish-black margins on leaves of *Bixa*. Known in Puerto Rico and Dominican Republic.

Bixa orellana: Dominican Republic, Puerto Rico.

Phyllosticta brasiliensis Linder (xxx) leaf spot

Forms black, globose, erumpent spore pustules causing serious damage to seedlings of *Araucaria* in Brazil.

Araucaria angustifolia: Brazil.

Phyllosticta bresadoleana Bud. & Kab. (xxx) oak leaf spot

Occurs on brown or yellow-gray spots with narrow brown-purple margins on *Quercus* in Austria.

Quercus pubescens: Austria (Tyrol).

Phyllosticta buxina Sacc. (xxx) box leaf spot

Occurs on pale brown spots with distinct dark purple margins on leaves of *Buxus*. Known in Italy, Netherlands, Great Britain, and Portugal.

Buxus sempervirens: Great Britain, Spain.

Phyllosticta camoensis Del. (xxx) coffee leaf spot

Occurs on white, thickened spots on leaves of *Coffea* in tropical Africa.

Coffea camoensis: Africa.

Phyllosticta campestris Pass. (xxx) maple leaf spot

Occurs on small red to red-brown spots on leaves of *Acer*. Known in France and Austria. Also reported on seedlings in England.

Acer campestre: Great Britain.

Phyllosticta catalpicola Oud. (xxx) catalpa leaf spot

Forms pale yellow spots on leaves of *Catalpa* in the Netherlands.

Catalpa bignonioides: Netherlands.

Phyllosticta cinchonaecola Vincens (xxx) leaf spot

Occurs on circular, deep brown patches with violet borders, on leaves of *Cinchona* in Indochina. Young leaves are deformed and growing shoots are involved, stunting the plants.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Phyllosticta cinnamomi Del. (xxx) **leaf spot**

Occurs on dull yellow spots on leaves of *Cinnamomum* in India.
Cinnamomum zeylanicum: India.

Phyllosticta cinnamomi-glanduliferi P. Henn. (xxx) **leaf spot**

Occurs on circular, dull brown spots on leaves of *Cinnamomum* in Germany and Russia.
Cinnamomum camphora: Russia.
C. glanduliferum: Germany.

Phyllosticta coccolobae Ell. & Ev. (xxx) **leaf spot**

Occurs on round, purplish spots 3 to 5 mm. across on leaves of *Coccoloba* in the Bahamas and Puerto Rico.
Coccoloba uvifera: Bahamas, Puerto Rico.

Phyllosticta cocos Cke. (xxx) **palm leaf spot**

Associated with pale brown spots on leaves of *Cocos* and *Caryota*. Distributed in Italy, India, and Pakistan.
Caryota sp.: Pakistan.
Cocos nucifera: India.

Phyllosticta coffeicola Speg. (xxx) **coffee leaf spot**

Occurs on leaves of *Coffea* in Costa Rica, Brazil, Congo, Malaya, and India.
Coffea arabica: India, Congo.

Phyllosticta cytisi Desm. (xxx) **leaf spot**

Associated with grayish-brown spots on leaves of *Laburnum*. Distributed in France, Great Britain, Denmark, Italy, Belgium, and Austria.
Laburnum anagyroides: Denmark, Great Britain.

Phyllosticta destruens Desm. (xxx) **leaf spot**

Occurs on whitish spots on leaves of *Celtis* and *Prunus*. Distributed widely in Europe.
Celtis australis: Denmark.

Phyllosticta draconis Berk. (xxx) **leaf spot**

Associated with irregular pale brown spots with purple margins on leaves of *Dracaena* and *Cordyline*. Distributed in Great Britain, France, Finland, and Portugal.
Dracaena cooperi: Great Britain.
D. draco: Portugal.

Phyllosticta eriodendri Died. (xxx) **leaf spot**

Associated with leaf spots 4 to 10 mm. across, light brown with indefinite margins, on *Ceiba* in India.
Ceiba pentandra: India.

Phyllosticta erythrinicola Young (xxx) leaf spot

Occurs on leaf spots, small, with sordid-white centers, brown with age and falling out, on *Erythrina*. Very common in all parts of Puerto Rico, causing serious spotting of foliage. Also known in Venezuela.

Erythrina glauca: Venezuela.

E. poeppigiana: Puerto Rico.

Phyllosticta eucalypti Thuem. (xxx) leaf spot

Occurs on large, dull brown to grayish-white spots on leaves of *Eucalyptus*. Distributed in California, Russia, Denmark, Spain, Portugal, Algeria, and Australia.

Eucalyptus gigantea: Denmark.

Phyllosticta fagi Oud. (xxx) beech leaf spot

Occurs on pale brown spots on leaves of *Fagus* in the Netherlands.

Fagus sylvatica: Netherlands.

Phyllosticta faginea Bres. (xxx) beech leaf spot

Occurs on small, dull brown spots on leaves of *Fagus*. Distributed from New York to Wisconsin, Indiana, and Missouri in the United States. Also reported in Germany.

Fagus sylvatica: Germany.

Phyllosticta ginkgo Brun. (xxx) leaf spot

Occurs on irregular, ashy spots with dark reddish-brown edges on leaves and fruits of *Ginkgo*. Distributed in Indiana, Pennsylvania, and the District of Columbia; also in France and Russia.

Ginkgo biloba: Russia (Caucasus).

Phyllosticta haynaldii Roum. & Sacc. (xxx) holly leaf spot

Occurs on indefinite dull red spots on leaves of *Ilex*. Distributed in Georgia, West Virginia, France, Germany, Denmark, and Great Britain.

Ilex aquifolium: Denmark, Great Britain.

Phyllosticta heveae Zimm. (xxx) leaf spot

Causes marginal or apical brown patches on leaves of young trees of *Hevea*. Distributed in Java, Philippines, Malaya, India, Ceylon, Uganda, Congo, Trinidad, and Brazil.

Hevea brasiliensis: Brazil, Ceylon, Congo, India, Java, Malaya, Philippines, Uganda.

H. guianensis: Brazil, Ceylon, India, Java, Malaya.

Phyllosticta honbaensis Vincens (xxx) leaf spot

Occurs on leaves of *Cinchona* in Indochina.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Phyllosticta kuwacola K. Hara (xxx) leaf spot

Associated with spots, minute, brown, later cinereous with concentric zones on leaves, shoots, and twigs of *Morus* in Japan. Causes considerable damage.

Morus alba: Japan.

Phyllosticta laurina Alm. (xxx) leaf spot

Occurs on irregular, dull brown spots with dark edges, on leaves of *Laurus* in Portugal.

Laurus nobilis: Portugal (Lisbon).

Phyllosticta lentisci (Pass.) Allesch. var. **maculicola** Bub. (xxx) leaf spot

Forms fungus pustules on small ashy spots on leaves of *Pistacia* in Texas, Italy, and Montenegro.

Pistacia lentiscus: Yugoslavia (Montenegro).

Phyllosticta leucadendri P. Henn. (xxx) leaf spot

Occurs on circular brown leaf spots on *Melaleuca* in Australia.

Melaleuca leucadendron: Australia (North Queensland).

Phyllosticta metrosideri Brun. (xxx) leaf spot

Forms fungus pustules on circular pale gray-brown spots with red-brown margins on leaves of *Metrosideros* in Tahiti.

Metrosideros villosa: Tahiti.

Phyllosticta microspora Saccas & Drouillon (xxx) tung leaf spot

Occurs on leaves of *Aleurites* in French Equatorial Africa.

Aleurites fordii: French Equatorial Africa.

A. montana: French Equatorial Africa.

Phyllosticta microstegia Syd. (xxx) leaf spot

Occurs on leaves of *Barringtonia* in the Philippines.

Barringtonia racemosa: Philippines.

Phyllosticta negundicola Speg. (xxx) leaf spot

Associated with minute ochraceous spots on leaves of *Acer* in France.

Acer negundo: France.

Phyllosticta orni Bub. (xxx) ash leaf spot

Forms fungus pustules on circular dull yellow spots with narrow brown margins on leaves of *Fraxinus* in Hungary.

Fraxinus ornus: Hungary.

Phyllosticta paulowniae Sacc. (xxx) leaf spot

Occurs on *Paulownia* on rather large leaf spots, ochraceous, rounded, with a sinuous margin and a very narrow brown border. Distributed in Alabama, District of Columbia, France, Italy, Germany, Russia, and Great Britain.

Paulownia tomentosa: France, Great Britain, Italy.

Phyllosticta pithecolobii Young (xxx) **leaf spot**

Occurs on leaf spots 5 to 10 mm. across, yellowish-brown to white in center, margin slightly raised and darker. Fungus pustules mostly along leaf veins. On *Pithecellobium*. Known in Puerto Rico, Virgin Islands, and Venezuela.

Pithecellobium ligustrinum: Venezuela.

P. unguis-cati: Puerto Rico, Virgin Islands (St. Croix).

Phyllosticta populina Sacc. (xxx) **poplar leaf spot**

Occurs on small spots, 2 to 3 mm. across, with yellow borders, later brown or gray with darker margins, on leaves of *Populus*. Distributed in the United States and Europe.

Populus sp.: Germany.

P. × canadensis: Italy.

P. × canadensis var. *serotina*: Great Britain.

P. deltoides: Norway.

P. nigra: Great Britain, Italy.

P. nigra var. *italica*: Denmark.

Phyllosticta prominens Oud. (xxx) **leaf spot**

Associated with leaf spots of *Populus* in Netherlands.

Populus balsamifera: Netherlands.

Phyllosticta robiniae Sacc. (xxx) **leaf spot**

Occurs on irregular, rufescent spots on leaves in Italy.

Robinia pseudoacacia: Italy (Conegliano).

Phyllosticta rondeletiae Tassi (xxx) **leaf spot**

Forms fungus pustules on red then ashy-white spots on leaves of *Rondeletia* in Italy.

Rondeletia odorata: Italy (Siena).

Phyllosticta salicicola Thuem. (xxx) **willow leaf spot**

Occurs on rounded grayish-white spots on leaves of *Salix*. Distributed in Connecticut, Idaho, and Wisconsin; also widely in Europe.

Salix sp.: Germany.

S. amygdalina: Denmark.

S. cinerea: Denmark.

Phyllosticta salisburiae Tassi (xxx) **ginkgo leaf spot**

Forms fungus pustules on leaf spots with dry centers and yellowish margins on *Ginkgo* in Italy.

Ginkgo biloba: Italy.

Phyllosticta sapotae Sacc. (xxx) **leaf spot**

Occurs on circular deep-brown spots with ashy-brown margins, on leaves of *Achras* in the Bahamas and Ceylon.

Achras zapota: Bahamas.

Phyllosticta swietenia Garcia (xx) **leaf spot**

Occurs on discolored areas on leaf margins; the yellow to brown areas gradually extend toward the petioles and leaves finally drop. The disease broke out among 6-month-old seedlings of *Swietenia*. Excessive moisture and dense shading favored infection. Known in Puerto Rico. The fungus is described in English without the Latin version required by the International Rules of Botanical Nomenclature.

Swietenia mahagoni: Puerto Rico.

Phyllosticta talae Speg. (xxx) **leaf spot**

Occurs on circular, ashy-colored spots on leaves of *Celtis* in Argentina.

Celtis tala: Argentina (Buenos Aires).

Phyllosticta tectonae Syd. & Butl. (xxx) **teak leaf spot**

Occurs on leaves of *Tectona* in India.

Tectona grandis: India.

Phyllosticta terminaliae P. Henn. (xxx) **leaf spot**

Occurs on rounded, dark olive spots with reddish outer edges on leaves in the Congo.

Terminalia baumii: Congo.

Phyllosticta theobromae Alm. & Camara (xxx) **cacao leaf spot**

Occurs on large, irregular spots on leaves. Distributed in Dominican Republic, Sao Tomé, Java, and Ceylon.

Theobroma cacao: Dominican Republic, Sao Tomé.

Phyllosticta tiliae Sacc. & Speg. (xxx) **linden leaf spot**

Occurs on dry, pale, ochraceous spots with dark margins, on leaves of *Tilia*. Distributed in North America from New York to Florida and westward to Wisconsin and Manitoba; also in Europe.

Tilia sp.: France.

T. cordata: Great Britain.

T. ×europaea: Great Britain.

T. platyphyllos: Denmark.

Phyllosticta trappenii Oud. (xxx) **ash leaf spot**

Forms fruiting bodies on large, ochraceous, emarginate spots on leaves of *Fraxinus* in the Netherlands.

Fraxinus americana var. *juglandifolia*: Netherlands.

Phyllosticta triacanthi Sacc. (xxx) **honeylocust leaf spot**

Forms yellowish-brown, irregular spots with brown edges on leaves in Italy.

Gleditsia triacanthos: Italy.

Phyllosticta ulmicola Sacc. (xxx) **elm leaf spot**

Occurs on dry, ochraceous spots on leaves. Known in Italy and Portugal.

Ulmus procera: Portugal.

Phyllosticta yerbae Speg. (xxx) **leaf spot**

Occurs on definite, circular, dull brown spots on leaves of *Ilex* in Argentina.

Ilex paraguariensis: Argentina.

Phyllosticta yersini Vincens (xxx) **leaf spot**

Forms fungus pustules on leaves and young shoots of *Cinchona* in Indochina.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Phyllosticta yulan Tassi (xxx) **leaf spot**

Associated with large pale brown spots on leaves of *Magnolia* in Italy. Called destructive.

Magnolia denudata: Italy.

Phyllostictina artocarpina (Syd. & Butl.) Syd. (xxx) **leaf spot**

Occurs on circular white spots with broad dark margins on leaves of *Artocarpus* in India.

Artocarpus heterophyllus: India.

Phyllostictina murrayae Syd. (xxx) **leaf spot**

Occurs on rounded spots 3 to 5 mm. in diameter, ochraceous brown to light tobacco brown, on leaves of *Murrraya* in India.

Murrraya koenigii: India.

Physalospora abdita (Berk. & Curt.) N. E. Stevens (xx) **canker**

Forms perithecia on diseased bark of affected trees. It occurs on many trees in tropical regions causing cankers, leaf blight, and root rot. Usually it lives as a saprophyte, but is able to become aggressively parasitic on wounded trees. Distributed in North America, South Africa, Australia, China, and India.

Acacia decurrens: Union of South Africa.

A. decurrens var. *mollis*: Union of South Africa (Transvaal and Natal).

Myristica fragrans: India.

Pinus caribaea: Australia (Queensland).

Physalospora cinchonae Vincens (xxx) **blight**

Forms perithecia on leaves in Indochina.

Cinchona officinalis: Indochina.

C. pubescens: Indochina.

Physalospora cryptomeriae Hara (xxx) **needle blight**

Forms perithecia on blighted leaves in Japan.

Cryptomeria japonica: Japan.

Physalospora eucalyptorum Turconi (xxx) **blight**

Associated with blight of 2- to 3-year seedlings in Italy.

Eucalyptus citriodora: Italy.

E. ficifolia: Italy.

E. salicifolia: Italy.

Physalospora gregaria Sacc. (xx) **yew canker**

Occurs on cankers of broad-leaved trees, and varieties occur on *Taxus* with leaf and tip blight. Known in the United States, Argentina, and Europe.

Populus balsamifera: Argentina.

Salix amygdalina: Scotland.

S. viminalis: Scotland.

Physalospora gregaria Sacc. var. **foliorum** Sacc. (xx) **yew canker**

Occurs on cankers of yew in Scotland. See *Physalospora gregaria* for description.

Taxus baccata: Scotland.

Physalospora gregaria Sacc. f. **taxi** Feltg. (xx) **yew canker**

See *Physalospora gregaria* for description. Associated with bark cankers of yew in Luxemburg.

Taxus baccata: Luxemburg.

Physalospora juglandis Syd. & Hara (xx) **canker**

Forms perithecia on cankered bark of branches in Japan.

Juglans ailantifolia: Japan.

Physalospora miyabeana Fukushi (xxx) **willow canker**

Forms conidial pustules on elliptical whitish-gray stem lesions 5 to 30 mm. long, with black borders, on *Salix*. Widely distributed in North America; also in Japan, Great Britain, and Poland.

Salix alba: Great Britain.

S. alba var. *vitellina*: Great Britain.

S. amygdalina: Great Britain.

S. purpurea: Great Britain, Japan.

S. viminalis: Great Britain.

Physalospora mutila N. E. Stevens (xx) **elm dieback**

A wound parasite causing dieback of branches of *Ulmus* in Italy. Inoculations in wounds succeeded.

Ulmus glabra: Italy.

Physalospora perseae Doidge (xxx) **avocado canker**

Causes cankers of twigs and branches. Known in Peru, Union of South Africa, Mozambique, and Tanganyika.

Mangifera indica: Union of South Africa.

Persea americana: Peru, Mozambique, Tanganyika, Union of South Africa.

Physalospora populina Maubl. (xx) **poplar canker**

Forms perithecia on stem cankers. Serious on young seedlings. Known in France and Italy.

Populus × canadensis: France, Italy.

Physalospora rhodina (Berk. & Curt.) Cke. (xx) **dieback, root rot**

Forms numerous black fungus pustules embedded in bark of diseased twigs. Associated with dieback of branches and root rot. Generally distributed in the Tropics on many broad-leaved trees. Mostly saprophytic, but occasionally becomes aggressively parasitic in pruning wounds and similar injuries. Distributed in West Indies, northern South America to Brazil, Java, Sumatra, India, Ceylon, Malaya, Philippines, Fiji, and central Africa.

Albizia falcata: Sumatra.

A. moluccana: Sumatra.

A. sumatrana: Sumatra.

Aleurites fordii: India.

A. montana: Indochina.

Araucaria cunninghamii: Australia (Queensland).

Ceiba pentandra: India.

Cinchona pubescens: Madagascar.

Cocos nucifera: El Salvador, Jamaica.

Cola acuminata: Gold Coast.

Hevea brasiliensis: Andaman Islands, Brazil, Congo, East Indies, French Equatorial Africa, Gold Coast, India, Indochina, Malaya, Uganda.

Inga edulis: El Salvador.

Mangifera indica: Brazil, India.

Persea americana: Peru.

Theobroma cacao: Brazil, Colombia, Congo, Dominican Republic, Gold Coast, Jamaica, Ivory Coast, Peru, Samoa, Sao Tomé, Tanganyika, Trinidad, Uganda, Venezuela, West Indies (St. Lucia).

Physalospora salicis (Fckl.) Sacc. (xx) **willow dieback**

Occurs on dieback twigs. Distributed in Ontario and northern Europe.

Salix sp.: Netherlands, Norway.

S. alba var. *vitellina*: Germany, Netherlands.

S. rubra: Denmark.

S. viminalis: Denmark.

Physalospora tabebuiae Rehm (xxx) **leaf spot**

Occurs on leaf spots in Brazil.

Tabebuia heterophylla: Brazil.

Phytophthora cactorum (Leb. & Cohn) Schroet. (xxx) **seedling blight**

Known in Europe for many years, causing damping-off of young seedlings of broad-leaved trees and conifers; on cotyledons and first leaves this fungus blights the entire plant. Known in North America but not as damaging as in Europe. Older trees are girdled at the base. The disease is prevalent practically wherever trees are planted extensively in Europe, eastern Asia, Africa, and South and North America. The fungus lives in soil and usually causes root rot or bark

canker near the soil. The fungus is believed to have come to North America from the Old World many years ago.

Abies alba: Denmark, Germany.

A. firma: Japan.

Acer sp.: Germany.

A. palmatum: Japan.

A. pseudoplatanus: Scotland.

Aleurites montana: Indochina.

Betula sp.: Japan.

Brachychiton populneum: Argentina.

Castanea crenata: France.

C. sativa: France.

Chamaecyparis obtusa: Japan.

Fagus sylvatica: Belgium, Denmark, France, Germany, Great Britain, Japan, Yugoslavia.

Fraxinus bungeana: Japan.

F. mandshurica: Japan.

Hevea brasiliensis: Ceylon, India, Java.

Juniperus procera: Tanganyika.

Larix decidua: Germany, Great Britain.

L. leptolepis: Japan.

Persea americana: Peru.

Picea abies: Germany, Norway.

P. jezoensis var. *hondoensis*: Japan.

Pinus sp.: Germany, Japan.

P. mugo: Denmark.

Quercus sp.: Scotland.

Robinia pseudoacacia: Hungary.

Schinus molle: Argentina.

Theobroma cacao: Congo, West Indies.

Phytophthora cambivora (Petri) Buis. (xxx) root rot

Causes destructive root rot of trees, chiefly chestnut, in Europe. Known as ink disease from the black exudate from cankered roots and bases of diseased trees. Has been disastrous on Corsica and in Coruna Province, Spain, the populace having been left destitute by the extensive dying of chestnut. Distributed widely in chestnut-growing regions of Europe. Also reported in Mauritius.

Castanea × *coudercii*: Portugal.

C. crenata: France, Great Britain.

C. mollissima: France.

C. sativa: Corsica, France, Great Britain, Italy, Portugal, Spain.

Casuarina equisetifolia: Mauritius.

Fagus sylvatica: Great Britain.

Juglans regia: Italy.

Quercus robur: Great Britain.

Phytophthora cinnamomi Rands (xxx) root rot

Causes root rot of numerous broad-leaved and coniferous tree seedlings, and dying of bark at ground level with liquid exudation in older trees. Death often results. This disease is very widespread on all the continents.

Betula pendula: Portugal.

- Castanea* $\times$ *coudercii*: Portugal.
C. crenata: Great Britain.
C. sativa: Argentina, England, New South Wales, Portugal, Spain.
Chamaecyparis lawsoniana: Netherlands.
Cinchona officinalis: Guatemala, India, Malaya, Peru (Tingo Maria).
C. pubescens: Guatemala, India, Malaya, Peru.
Cinnamomum burmannii: East Indies.
C. camphora: Sumatra.
C. culilawan: Sumatra.
C. sintok: Sumatra.
C. zeylanicum: Sumatra.
Cupressus sp.: Argentina.
Eucalyptus sp.: Australia.
Fagus sylvatica: Great Britain.
Jacaranda sp.: Australia.
Juglans regia: Portugal, Spain.
Nectandra sinuata: Honduras.
Ocotea architectorum: Peru.
Olea sp.: Australia.
Persea americana: Argentina, Australia, Costa Rica, Honduras, Mexico, Peru, Puerto Rico, Union of South Africa.
P. schiedeana: Mexico.
Platanus orientalis: Argentina.
Quercus pyrenaica: France.
Q. robur: France, Portugal.
Q. suber: Portugal.
Taxus baccata: Netherlands.
Thuja sp.: Argentina.

Phytophthora citrophthora (R.E. & E.H.Sm.) Leonian (xxx)

Parasitic on green fruits of numerous broad-leaved and *Araucaria* trees in North America and Argentina.

- Araucaria angustifolia*: Argentina.
Bauhinia candicans: Argentina.
Brachychiton acerifolium: Argentina.
B. populneum: Argentina.
Celtis australis: Argentina.
Juglans regia: Argentina.
Melia azedarach: Argentina.
Pinus halepensis: Argentina.
P. pinea: Argentina.
Zanthoxylum coco: Argentina.

Phytophthora palmivora Butl. (xxx)

rot

Causes a very serious bud rot of palms and leaf rot and bark canker of cacao, *Hevea*, and other important trees of the Tropics around the world. Tremendous damage has been inflicted.

- Aleurites fordii*: India.
Archontophoenix alexandrae: Philippines.
Areca cathecu: India, Ceylon, Pakistan.
Artocarpus altilis: Ceylon, Dominican Republic.

- A. heterophyllus*: India.
Borassus flabellifer: India.
Brachychiton populneum: Argentina.
Chrysalidocarpus lutescens: Philippines.
C. madagascariensis: Philippines.
Cinchona officinalis: Philippines.
C. pubescens: Philippines.
Cocos nucifera: Andaman Islands, Brazil, Ceylon, Fiji Islands (Tonga), India, Mauritius, New Guinea, Philippines, Puerto Rico, Seychelles, Jamaica, St. Lucia.
Elaeis guineensis: Congo.
Ficus sp.: Japan.
F. carica: Formosa.
F. retusa: India.
Hevea brasiliensis: Andaman Islands, Borneo, Brazil, Ceylon, Congo, Costa Rica, Gold Coast, India, Indochina, Java, Liberia, Malaya, Philippines.
Howea belmoreana: France.
H. forsteriana: Italy.
Livistona rotundifolia: Philippines.
Mangifera indica: India, Philippines.
Persea americana: Honduras.
Pinanga insignis: Philippines.
Rhopalostylis baueri: France.
Sabal causiarum: Puerto Rico.
Santalum album: India.
Theobroma cacao: Belgian Congo, Brazil, British Guiana, Ceylon, Colombia, Dominican Republic, Fiji Islands, Gold Coast, Guadeloupe, Guatemala, India, Jamaica, Java, Leeward Islands (Dominica), Mexico, New Guinea, New Hebrides, Peru, Philippines, San Thomé, St. Lucia Island, Siam, Tanganyika, Tobago, Trinidad, Uganda, Venezuela, West Africa (Sao Tomé).

Phytophthora parasitica Dast. (xxx) canker, blight

Causes stem canker of seedlings and blight of branches of numerous trees including conifers. Distributed in California and Florida southward in Central America, West Indies, South America, and in Europe, Africa, and Australia.

- Araucaria excelsa*: Peru.
Brachychiton populneum: Argentina.
Cinchona officinalis: Costa Rica, Guatemala, Peru, Puerto Rico.
C. pitayensis: Colombia.
C. pubescens: Colombia, Costa Rica, Guatemala, Peru, Puerto Rico.
Cocos nucifera: Jamaica.
Cryptomeria japonica: Argentina.
Eucalyptus citriodora: Brazil.
E. viminalis: Argentina.
Juglans regia: Australia (Victoria).
Melia azedarach: Argentina.
Pinus halepensis: Argentina.
Schinus molle: Argentina.

Phytophthora quinea Crandall (xxx) **root rot**

Causes root and collar rot of *Cinchona*. Distributed in Central America, West Indies, Bolivia, and Peru.

Cinchona micrantha: Peru.

C. officinalis: Bolivia, Guatemala, Peru, Puerto Rico.

C. pubescens: Guatemala, Peru, Puerto Rico.

Phytophthora syringae Kleb. (xxx) **blight, dieback**

Causes leaf blight and dieback of *Castanea* and other broad-leaved trees in the United States and Europe.

Castanea crenata: Great Britain.

C. sativa: Great Britain.

Fagus sylvatica: Great Britain.

Pileolaria standleyi Cummins (xxx) **pistache rust**

Forms cinnamon-brown to chestnut-brown rust pustules on leaves, petioles, and young branches (the latter are deformed) of *Pistacia* in Guatemala.

Pistacia mexicana: Guatemala.

Pileolaria terebinthi (DC.) Cast. (xxx) **pistache rust**

Forms rust pustules on leaves of *Pistacia*. Known in China, Dalmatia, and Morocco.

Pistacia chinensis: China.

P. terebinthus: Morocco.

P. weinmannifolia: China.

Placosphaeria durionis Syd. (xxx) **black spot**

Forms dark fungus pycnidia on leaves in the Philippines.

Durio zibethinus: Philippines.

Placosphaeria tiliae Bub. (xxx) **linden leaf spot**

Occurs on brown, then yellowish, spots on leaves in Hungary.

Tilia cordata: Hungary.

Pleospora erythrina Ces. (xx) **leaf spot**

Associated with gray spots with dark borders on leaves of *Erythrina* in Italy.

Erythrina crista-galli: Italy.

Pleurotus dryinus Fr. (xx) **heart rot**

A wound parasite of hardwoods, of the mushroom type with vertical spore-bearing gills under the cap, and a lateral stem. Causes a white rot. Distributed widely in North America, Europe, India, and Philippines.

Carpinus betulus: Russia (Caucasus).

Fraxinus sp.: Great Britain.

Quercus sp.: Great Britain.

Salix sp.: Great Britain.

Pleurotus lampas Berk. (xx) butt rot

A wound parasite causing rot of trees of *Eucalyptus* at the ground level. Distributed widely in Australia and in Tasmania.

Eucalyptus sp.: Australia (Queensland, New South Wales, Victoria, West and South Australia), Tasmania.

Pleurotus mitis (Fr.) Quél. (xx) canker

A small wound parasite of mushroom type with vertical gills beneath, white to rufescent, stem lateral, common on coniferous stumps and occasional on living trees causing long bark cankers and splitting of the entire trunk. Distributed in North America and Europe.

Abies alba: Switzerland.

Picea abies: Switzerland.

Pleurotus ostreatus (Fr.) Quél. (xx) trunk rot

A common mushroom, usually saprophytic but occasionally a wound parasite on broad-leaved and coniferous trees. Distributed in North America, South America, Europe, Asia, North Africa, and South Australia.

Ficus carica: North Africa.

Salix babylonica: China.

Pleurotus salignus (Fr.) Quél. (xx) trunk rot

A wound parasite with vertical spore-bearing gills beneath the eccentrically stemmed cap; gills branched in the middle and dingy-fuliginous. Cap cinereous or ochraceous. Said to be "often parasitic" on hardwood trees. Distributed in North America, Europe, and India.

Alnus sp.: Great Britain.

Fagus sylvatica: Germany.

Salix sp.: Great Britain.

Pleurotus ulmarius (Fr.) Quél. (xx) elm branch rot

A wound parasite, large, with vertical spore-bearing gills beneath the ochraceous cap. Flesh tough, white. On hardwoods, especially *Ulmus*, often on large branches where nearly equal-sized branches have broken out years before. Distributed in North America especially on older trees of *Ulmus americana*, in Europe and the Philippines.

Fagus sylvatica: Germany.

Ulmus sp.: Great Britain.

Podosphaera oxycanthae (DC.) d By. (xxx) powdery mildew

Forms white powdery coating, sometimes heavy on the leaves and young twigs of numerous Rosaceae. A single spore sac in each perithecium distinguishes this genus from other powdery mildews. Distributed widely in North America, Europe, Siberia, China, and Japan.

Crataegus monogyna: Denmark, Norway.

C. oxycantha: Norway.

C. pinnatifida: Siberia (Ussuri).

C. sanguinea: Siberia.

C. scabrifolia: China.

Sorbus aucuparia: Denmark, Germany, Norway, Russia (Kazan).

Polyporus adustus Willd. ex Fr. (xx) **white trunk rot**

Conk sessile to effused-reflexed, corky, rigid, often overlapping, 3 to 10 cm. wide, white to smoke-gray or tan, margin thin, and sterile below; tubes 2 mm. long or less. Usually saprophytic but occasionally a wound parasite on hardwoods, and less often on conifers. Causes a white mottled rot. Distributed in North America from Newfoundland to British Columbia, the United States, Mexico, Honduras, West Indies, and Peru; also in Europe, Siberia, India, Formosa, Japan, Philippines, East Indies, Australia, New Zealand, and South Africa.

Fagus sylvatica: Denmark, Great Britain.

Picea abies: Sweden.

Shorea robusta: India.

Polyporus balsameus Pk. (xx) **butt rot**

Conk sessile or effused-reflexed, often multiple, 2 to 6 cm. across, fibrillose, whitish to light brown, tubes 1 to 3 mm. long, thin walled, 3 to 4 per mm. On conifers, rarely on hardwoods. Causes cubical brown rot. Distributed in North America from Nova Scotia and Province of Quebec to British Columbia and southward in eastern United States to Minnesota and Tennessee; reported from Sweden and Japan.

Abies mariesii: Japan.

A. sachalinensis: Japan.

Picea glehnii: Japan.

Polyporus berkeleyi Fr. (xx) **butt rot**

Conk with a stem, large, single or compounded of several broad segments, fleshy, tough, brittle when dry, 6 to 25 cm. across, whitish to yellowish, tomentose, pores angular, white, discoloring on drying, tubes 2 to 10 mm. long, 0.5 to 2 mm. in width. On or near bases of broad-leaved trees, sometimes on conifers. Causes stringy white butt rot. Distributed widely in North America; also in Russia, India, Philippines, Australia, and New Zealand.

Abies nordmanniana: Russia.

Polyporus borealis Fr. (xx) **butt rot**

Conks large, sessile, fleshy, white, with shaggy upper surface, usually in clusters, overlapping. Usually on or near the base of living conifers and less commonly on hardwoods. Causes a mottled white rot. A wound parasite in North Temperate localities, especially on *Tsuga* and *Picea*. Distributed widely in North America from Alaska southward to Tennessee and North Carolina, and eastward to Nova Scotia; also in Europe and Siberia.

Picea abies: France, Germany, Norway, Sweden.

P. obovata: Siberia.

Polyporus croceus Pers. (xx)**butt rot**

Conk sessile, buff or orange, reddish when older, rigid when dry, rough, azonate, pore surface orange to reddish yellow, brown to black and resinous when dried; tubes 0.5 to 2 cm. long, mouths angular, thin walled, 2 to 4 per mm. On wounds in living trees of *Castanea* and *Quercus*. Causes a piped white butt rot. Distributed in the United States, Canada, and Europe.

Castanea sativa: Russia (Caucasus).

Quercus sp.: Portugal.

Polyporus cuticularis Fr. (xx)**trunk rot**

Conks sessile, overlapping, spongy, watery and tough when fresh, 3 to 10 cm. across, brown, woolly-tomentose; pore surface hoary brown to rusty brown, tubes 2 to 10 mm. long, mouths angular, thin walled, 3 to 5 per mm. On wounds in broad-leaved trees. Causes a white rot. Distributed widely in North America from Alaska southward to Central America; also in Europe, Morocco, and India.

Betula sp.: Great Britain.

Carpinus sp.: Great Britain.

Fagus sylvatica: Germany.

Quercus sp.: India.

Q. ilex: Portugal.

Q. suber: Morocco, Portugal, Russia (Caucasus).

Q. suber var. *occidentalis*: Russia (Caucasus).

Polyporus dryadeus Fr. (xx)**root rot**

Conks sessile, corky-woody, very rough on top, large, 9 to 20 cm. across, whitish then brownish to reddish-brown or almost black, with a thin, easily indented crust and obtuse margin. Fluid exudes in large drops when conks are young, and leaves sunken hollows showing even in old mature specimens; pore surface brownish, tubes 0.5 to 2 cm. long, mouths angular, very thin walled, 3 to 5 per mm. Fruits at or just above the ground line. On hardwoods and occasionally on conifers. It causes a serious delignifying, white, or straw-colored wet rot of both heart and sapwood but is limited strictly to the roots. Distributed widely in oak forests of North America, south to Mexico inclusive, Europe, Siberia, China, and Australia.

Abies georgei: China.

A. nordmanniana: Russia.

Castanea sativa: Russia (Caucasus).

Eucalyptus sp.: Australia (New South Wales).

E. obliqua: South Australia.

Populus tremula: Siberia.

Quercus sp.: Austria, France, Germany, Great Britain, Russia.

Q. robur: Denmark, Poland.

Tilia × europaea: Denmark.

Polyporus dryophilus Berk. (xx)**trunk rot**

Conk with a hard, granular, sandstonelike core permeated with white mycelial strands; sessile, tubercular to triangular in section, 4 to 22 cm. across, whitish, early changing to brownish or almost black.

Cortex pale but more brownish next to the tubes. Pore surface cinnamon brown or darker, tubes 0.3 to 3 cm. long, mouths angular, thick walled, 2 to 3 per mm. A wound parasite of living hardwood trees, especially *Quercus*. Produces conspicuous white-piped rot of the heartwood of oaks. *Polyporus dryophilus* var. *vulpinus* produces a soft, white rot in *Populus* wood. Distributed generally in the United States and in New Brunswick, Ontario, and Europe; reported from Hawaii and Argentina as *Polyporus rheades*.

Populus tremula: Denmark.

Quercus sp.: Russia.

Sorbus aucuparia: Denmark.

Polyporus eucalyptorum Fr. (xx)

trunk rot

Conks hoof shaped, annual, with a thin skin tinted grayish brown, white flesh, and almost canary yellow pores. Causes a very destructive brown heart rot with extensive flat white sheets of mycelium with a consistency of chamois leather. Occurs on *Eucalyptus* in Australia.

Eucalyptus Baxteri: Australia.

E. camaldulensis: Australia.

E. elaeophora: Australia.

E. leucocorylon: Australia.

E. marginata: Australia.

E. obliqua: Australia.

E. viminalis: Australia.

Polyporus frondosus Fr. (xx)

butt rot

Conks with stem compound, branching many times, and bearing numerous overlapping small pilei, the entire mass often being as much as 60 cm. across. Pilei fleshy, tough, spatulate, 2 to 7 cm. wide, pale mouse gray, fibrillose to tomentose, pore surface white to yellowish, tubes 2 to 3 mm. long, decurrent, mouths angular, 1 to 3 per mm. On hardwoods and some conifers around the bases. Produces a wet, soft, delignifying butt rot. Distributed widely in the United States and in Nova Scotia, Cuba, northern Europe, and Siberia.

Quercus sp.: Great Britain.

Polyporus giganteus Fr. (xx)

root rot

Conk stemmed, compound, 15 to 40 cm. or more wide, with 2 or 3 to 12 or 15 fleshy-tough pilei, 6 to 15 cm. wide and less than 1 cm. thick, semicircular to spatulate, grayish, smoky brown or blackish, fibrillose, with thin margins; pores white, tubes 1 to 3 mm. long, mouths angular, 4 to 7 per mm., stems short and thick. Around the bases of hardwoods and conifers. Distributed sparsely in the United States and Europe.

Fagus sylvatica: Russia (Caucasus).

Pinus sylvestris: Sweden.

Quercus sp.: Sweden.

Q. suber: Russia (Caucasus).

Q. suber var. *occidentalis*: Russia (Caucasus).

Polyporus gilvus Fr. (xx)

trunk rot

Conk sessile or effused-reflexed, corky, 7 to 12 cm. wide, ochraceous or bright rusty yellow to dark rusty brown, rough and zonate; pores grayish brown to dark brown, tubes 1 to 5 mm. long, rarely in 2 or

more annual layers, mouths rounded, 5 to 8 per mm. Mostly saprophytic, but occasionally weakly parasitic on hardwoods and conifers in wounds. Causes a white rot. Distributed widely in North, Central, and South America; Europe, Africa, Asia, and Australia.

Acacia catechu: India.

A. scorpioides: India.

Albizia lebbek: India.

A. procera: India.

Cryptomeria japonica: Japan.

Dalbergia latifolia: India.

D. sissoo: India.

Pterocarpus marsupium: India.

Quercus sp.: India.

Shorea robusta: India.

Terminalia catappa: India.

Polyporus hispidus Fr. (xx)

trunk rot

Conk large, 8 to 25 cm. wide, sessile, spongy then tough, rigid on drying, yellowish brown to rusty red or almost black, densely hirsute on top; pores with angular mouths, thin walled, 2 to 4 per mm. On trunks of living broad-leaved trees; uncommon on conifers. Often emerging in large sunken lesions showing evidence of killing cambium over considerable areas. Causes soft, spongy, delignifying yellowish rot. Evidently an aggressive wound parasite of living trees. Distributed in the United States, Ontario, Europe, Siberia, India, and Pakistan.

Acacia senegal: France.

Acer pseudoplatanus: Russia (Caucasus).

Fagus sylvatica: Denmark.

Fraxinus excelsior: Belgium, Denmark, England, France, Germany, India, Italy, Norway, Pakistan, Portugal, Russia (Caucasus), Siberia (Ussuri).

F. mandshurica: Siberia (Ussuri).

F. nigra: Great Britain.

Juglans sp.: France, Great Britain, Portugal.

J. regia: Italy, Russia.

Morus sp.: France, India, Portugal.

M. alba: Germany, India.

Pistacia khinjuk: Pakistan.

Platanus sp.: France, Germany.

P. orientalis: Portugal.

Populus sp.: Portugal.

P. tremula: Norway.

Quercus sp.: Belgium, France, Portugal.

Q. mongolica: Siberia (Amur).

Q. robur: Denmark.

Sophora sp.: France.

S. japonica: Portugal.

Sorbus sp.: France.

Ulmus sp.: France, Germany, Portugal.

U. japonica: Siberia (Ussuri).

Polyporus lignosus Klotzsch (xxx) root rot

Conk soft, flexible, drying hard and rigid, persisting and often reviving; sessile, imbricate, 3 to 25 cm. wide, zonate red-brown alternating with yellow and orange, not incrusting; pores sometimes in 2 to 4 layers, 9 to 10 per mm., pore mouths angular to circular, orange, drying pinkish to red-brown. On roots of many tropical trees, causing a white to yellowish decay. Distributed throughout the Tropics and known by a number of different names. Very damaging to *Hevea* rubber trees.

Hevea brasiliensis: Mexico and French Equatorial Africa.

Polyporus litschaueri (Fr.) Lohwag (xx) heart rot

Conks annual or biennial, 4 to 15 cm. wide, sessile, shelflike to almost ungulate, spongy, drying hard-fibrous, white to yellowish or tawny, tomentose to almost glabrous, with a grayish rugose membrane; tubes 1 to 1.5 cm. long, pores very variable in size and shape. Causes a mottled rot of heartwood of hardwoods. Later the decayed wood is entirely white but limited to the heartwood. Entry is through wounds. Known in Russia and Siberia.

Acer sp.: Russia.

Populus sp.: Russia.

Quercus mongolica: Russia, Siberia.

Ulmus sp.: Russia.

Polyporus mollis Fr. (xx) heart rot

Conk 2.5 to 8 cm. wide, white turning reddish when bruised, semi-circular, multiple, rugose, silky fibrillose, margin acute, tubes white, 3 to 10 mm. long; mouths of pores white, flesh-red where touched, fragile, thick; a wound parasite on conifers. Associated with brown heart rot. Distributed in Canada, the United States, and Europe.

Picea abies: Czechoslovakia.

Pinus sylvestris: Germany.

Polyporus obtusus Berk. (xx) white heart rot

Conk sessile, large, 3 to 30 cm. wide, white to yellowish, corky, hirsute; pores very large, irregular, tubes 1 to 3 cm. long, 2 to 3 mm. wide, pore surface white or yellowish to bay color, pore walls rather thick. A wound parasite of hardwoods entering burrows of wood borers and causing a stringy, white rot. Distributed widely in the United States and known in Ontario. It is apparently rare in the Old World.

Quercus dilatata: India.

Q. semicarpifolia: India.

Polyporus orientalis Lloyd (xx) pine root rot

Conk rusty brown throughout, turbinate, with a short, thick central stem. Surface smooth, soft to the touch; pores minute with colored straight setae. Causes white pocket rot in roots of *Pinus*. Widely distributed in Japan.

Pinus densiflora: Japan.

Polyporus patouillardii Rick. (xx) white pocket rot

Conk sessile, applanate, 2 to 3 cm. thick. Surface smooth, brown, dull. Flesh hard, brittle, with a satiny luster, dark brown. Pores small, round, 1 to 1.5 cm. deep. On broad-leaved trees. Causes white pocket rot of heartwood. Distributed in Brazil, Philippines, Japan, Australia, and South Africa.

Lithocarpus cuspidata: Japan.

Quercus gilva: Japan.

Q. glauca: Japan.

Scolopia mundtii: Union of South Africa.

Polyporus resinosus Fr. (xx) trunk rot

Conk shelflike, watery, fleshy, rigid when dry, 7 to 25 cm., brown, margin thick, exuding water drops when young, tubes 1 to 10 mm. long, 4 to 6 per mm., walls thick. Usually saprophytic but sometimes a wound parasite on hardwoods, less common on conifers. Associated with a white stringy rot. Distributed in Alaska, the United States and Canada, east and west; also Scandinavia, Siberia, and India.

Abies sibirica: Siberia.

Picea abies: Norway.

Polyporus rubidus Berk. (xx) coffee root rot

Conk brown with faint indication of stipe, on roots of *Coffea*; has rhizomorphs. Distributed in Ceylon, Java, and probably other parts of the Eastern Tropics.

Coffea arabica: Java.

C. canephora var. *robusta*: Java.

Polyporus schweinitzii Fr. (xxx) root and butt rot

The conk is large, velvety, reddish brown above, with large irregular pores beneath, greenish at first, later brown. The texture is soft, corky, and brittle. Stem varies from central, eccentric, or lacking when growing out from its host tree laterally. Attacks conifers mostly, rarely hardwoods. In North American forests probably causes more damage in living trees than any other single woodrotting fungus. Causes a cubical red-brown decay of roots and base of trunk. Distributed widely throughout the North Temperate Zone and known also in Australia.

Abies sp.: Japan, Russia.

A. alba: Italy.

A. georgei: China.

A. nephrolepis: Siberia (Ussuri).

A. sachalinensis: Japan.

A. sibirica: Siberia.

Acacia sp.: Portugal.

Eucalyptus obliqua: Australia.

Fraxinus sp.: Portugal.

Larix sp.: Japan, Russia.

L. decidua: Germany, Great Britain, Norway, Sweden.

L. gmelinii: Russia, Siberia.

L. potaninii: China.

Picea sp.: Germany, Japan, Russia.

- P. abies*: Great Britain, Norway.
P. jezoensis: Siberia (Ussuri).
Pinus densiflora: Japan.
P. parviflora: Japan.
P. pinaster: France, Great Britain, Portugal.
P. pinea: Portugal.
P. sylvestris: Germany, Great Britain, Norway, Poland, Russia.
P. thunbergii: Japan.
Quercus sp.: Norway.
Ulmus sp.: Portugal.

Polyporus shoreae Wakef. (xx) root and trunk rot

Conk appanate, horizontal, sessile to substipitate, 18 to 27 cm. wide, smooth, rigid, rimose. Pore surface bluish gray to rusty brown, tubes 3 mm. long, bluish gray and rigid. On living trees of *Shorea* at the base of the trunk and on roots. Causes a white pocket rot. It is very damaging. Known only in India.

Shorea robusta: India.

Polyporus squamosus Fr. (xx) trunk rot

Conk short stemmed, or almost sessile, single or overlapping in clusters, fleshy, tough, rigid when dry, 6 to 30 cm. wide, subcircular to reniform, white to yellowish with brownish scales; pore surface white or yellowish, tubes 2 to 8 mm. long, mouths large, angular, 1 to 2.5 mm. wide, thin walled. A wound parasite on many hardwood trees, rarely on conifers, that causes a streaked or mottled white rot. Distributed widely in North America; also in Paraguay, Europe, Siberia, Mongolia, China, India, and Australia.

- Acer platanoides*: Russia, Germany, Great Britain, Denmark.
A. pseudoplatanus: Denmark, Germany, Great Britain.
Aesculus hippocastanum: Germany, Great Britain.
Betula sp.: Great Britain.
Castanea sativa: Germany.
Celtis sp.: Austria.
Fagus sylvatica: Belgium, Denmark, Germany, Great Britain.
Fraxinus sp.: Germany, Great Britain, Norway.
F. excelsior: Denmark, Great Britain.
Juglans sp.: Great Britain.
J. regia: Denmark, Italy.
Larix sibirica: Siberia.
Morus alba: Germany.
Platanus sp.: Austria.
Populus × *canadensis*: Denmark.
P. nigra: Poland.
P. tremula: China, Norway, Siberia.
Quercus sp.: Germany, Great Britain, Norway, Russia.
Salix sp.: Germany.
S. rubens var. *viridis*: Denmark.
Sorbus sp.: Germany.
S. aucuparia: Germany.
S. cuspidata: Great Britain.
Taxus sp.: Great Britain.
T. baccata: England.

Tilia sp.: Austria, Germany, Great Britain.

T. × europaea: Denmark, Great Britain.

Ulmus sp.: Denmark, Germany, Great Britain, Norway, Russia.

U. glabra: Germany, Great Britain.

Polyporus sulphureus Fr. (xx)

trunk rot

Conk sessile, often in large rosettelike clusters 20 to 60 cm. broad, fleshy, drying rigid and brittle, salmon, sulphur yellow or orange, fading to almost white; pore surface sulphur yellow or fading; the tubes are 1 to 4 mm. long, the mouths angular, thin walled, 2 to 4 per mm. On trunks of numerous hardwoods and conifers. Causes cubical brown rot of heartwood. Distributed widely in North America, Europe, India, Japan, Philippines, Siberia, Union of South Africa, and Australia.

Abies sp.: Japan.

A. alba: Germany.

A. pindrow: India.

A. sachalinensis: Japan.

Alnus sp.: Germany, Great Britain.

A. japonica: Japan.

Betula sp.: Norway.

Castanea sp.: Germany, Japan.

C. sativa: France, Germany, Portugal, Russia.

Eucalyptus sp.: Union of South Africa.

Fagus sylvatica: Denmark, Germany.

Fraxinus sp.: Germany, Great Britain.

F. excelsior: Denmark.

Juglans sp.: Germany, Great Britain.

J. ailantifolia: Japan.

J. regia: Germany, Italy.

Larix sp.: Japan.

L. decidua: Germany, Great Britain, Russia, Switzerland.

L. gmelinii: Russia, Siberia.

Lithocarpus sieboldii: Japan.

Picea sp.: Japan.

P. jezoensis: Siberia (Ussuri).

P. smithiana: India.

Pinus sp.: Great Britain, Japan.

P. khasya: India.

P. sylvestris: Great Britain.

Platanus orientalis: Portugal.

Populus sp.: Germany, Great Britain, Portugal.

P. alba: Germany.

P. × canadensis: Italy.

P. tremula: Japan, Norway.

Quercus sp.: France, Germany, Great Britain, India, Norway, Russia, Union of South Africa.

Q. robur: Denmark.

Salix sp.: Austria, Germany, Great Britain, Japan.

S. alba: Denmark, Germany.

S. rubens: Denmark.

Taxus baccata: Great Britain, Russia (Caucasus).

Tsuga sp.: Japan.

Polyporus tomentosus Fr. (xx)**root rot**

Conk with a stem or sessile, spongy to rigid when dry, pileus circular to fan shaped, 3 to 18 cm. wide, ochraceous to rusty brown, tomentose; pore surface hoary or brown, tubes 1.5 to 7 mm. long, setae straight, mouths angular to irregular, thin walled, 2 to 4 per mm. On conifers, rarely on hardwoods, causing a white pocket rot in roots and butts of trees. Known in North America and Japan.

Abies sachalinensis: Japan.

Picea jezoensis: Japan.

Polyporus tomentosus Fr. var. circinatus (Fr.) Sartory &**Maire (xx)****root rot**

Conk with a stem on roots, sessile on trunks, spongy to rigid on drying, circular or semicircular, 3 to 18 cm. broad, whitish to rusty brown, soft, tomentose; pores angular, thin walled, 2 to 4 per mm. On trunk or roots. Causes a white pocket rot in the wood of coniferous trees, rarely on hardwoods. Distributed in Canada and United States, Europe, and India.

Cedrus deodara: India.

Picea abies: Norway.

P. smithiana: India.

Pinus sp.: Portugal.

P. griffithii: India.

P. sylvestris: Poland.

Polyporus versicolor Fr. (xx)**heart rot**

Conk small, sessile or effused-reflexed, usually overlapping, coriaceous to rigid, 2 to 10 cm. wide, variable in color, with narrow white to reddish-black zones; always zonate unless growing in shaded situations, silky villose, the alternate zones glabrous; pore surface white, yellowish, or brown, the tubes up to 2 mm. long, the mouths angular, thin walled, 3 to 5 per mm. Prevalent as a saprophyte on dead wood. Occasionally a wound parasite of broad-leaved and coniferous trees. Causes a white spongy rot. Distributed over the large land masses of the whole world where trees grow.

Cupressus macrocarpa: Kenya.

Polyporus zonalis Berk. (xx)**heart rot**

Pileus sessile, semicircular or fan shaped, 2 to 9 cm. wide, white to reddish or ochre-yellowish, multizonate; pores minute, 2 to 4 mm. long, mouths angular, thin walled, 8 to 9 per mm. A wound parasite of hardwood trees. Associated with a serious pocket rot of heartwood. Distributed in the Gulf States of the United States, Mexico, West Indies, Nicaragua, Brazil, Peru, Madagascar, Ceylon, Borneo, India, Japan, Java, Philippines, and Australia.

Artocarpus altilis: Brazil.

A. heterophyllus: Brazil.

Bombax munguba: Brazil.

Calophyllum sp.: Brazil.

Calycophyllum spruceanum: Brazil.

Carapa guianensis: Brazil.

Cecropia sp.: Brazil.

Ceiba pentandra: Brazil.
Cocos nucifera: Brazil.
Coffea arabica: Brazil.
Ficus sp.: Brazil.
Hevea brasiliensis: Brazil.
Hura crepitans: Brazil.
Mallotus ricinoides: Philippines.
Mangifera indica: Brazil.
Pouteria macrocarpa: Brazil.
Theobroma cacao: Brazil.
Toona ciliata: India.

Polyporus zonatus Fr. (xx)**trunk rot**

Conk pale tan color semicircular, zoned with ochraceous and gray bands. Tubes whitish, short, mouths of pores whitish to light ochraceous brown, small. Flesh whitish, corky, rather thick. Mentioned in Denmark as attacking living tree trunks in great numbers. Causes a white rot. Distributed in North America, Europe, South Africa, Sarawak, and India.

Betula sp.: Great Britain.
Fagus sylvatica: Denmark.
Fraxinus excelsior: Denmark.
Picea abies: Sweden.
Populus sp.: Great Britain.
P. alba: Denmark.
P. tremula: Denmark.
Quercus robur: Denmark.
Sorbus $\times$ *hybrida*: Denmark.
Ulmus sp.: Great Britain.

Polystigma pusillum Syd. (xxx)**leaf spot**

Occurs on small, circular to angular, yellowish spots on leaves of *Andira*. Known in Guatemala, El Salvador, and Venezuela.

Andira inermis: El Salvador, Venezuela.

Poria ferruginosa (Fr.) Karst. (xx)**white spongy rot**

Forms resupinate fungus mats up to 2.5 cm. thick and reddish brown; the pore surface grayish brown to reddish brown; tubes up to 3 mm. each season, the pores rounded, 4 to 5 per mm. Causes a white spongy rot in conifers and broad-leaved trees. Distributed in North America from Alaska and Canada southward through the United States and West Indies; also in Europe, Siberia, Australia, and New Zealand.

Pinus radiata: Australia (Victoria).

Poria hypobrunnea Petch (xx)**red root rot**

Associated with so-called red root disease of broad-leaved trees including *Hevea*. Stout red mycelial strands are formed on the exterior of a root and may develop into a continuous red sheet. The rhizomorphs are smooth, tough, red outside, white within, turning black with age. The rotted wood is soft, friable, and permeated with red mycelial sheets. The fruiting body is first yellowish or ochraceous,

then red brown and finally dark slate color. The fungus is known to be in the Gold Coast, Ceylon, India, and Malaya.

Hevea sp.: Malaya.

Hevea brasiliensis: Ceylon, India.

Spathodea campanulata: Malaya.

Theobroma cacao: Gold Coast.

***Poria hypolateritia* (Berk.) Cke. (xx) root rot**

Forms effused fungus mats, hard and brittle when dry, and is white with a reddish lower surface, concolorous with the pores; pores 7 to 8 per mm., angular; pore mouths whitish, later pink, walls thin. Causes root rot of a number of tropical broad-leaved trees. Known in India, Ceylon, and Indochina.

Aleurites montana: Indochina.

Hevea brasiliensis: Ceylon, India.

***Poria monticola* Murr. (xx) brown rot**

Conk annual, effused to 10 cm. across, soft, papery, margin white, narrow, fimbriate; pore surface dull white, tubes up to 8 mm. long, pores angular, 2 to 3 per mm. Associated with a brown cubical rot of conifers and broad-leaved trees. Distributed in Colorado, Idaho, New York, and Vermont in the United States; in British Columbia and Ontario in Canada; and in India.

Pinus roxburghii: India.

***Poria obliqua* (Fr.) Karst. (xx) heart rot**

Forms annual widely effused spore-bearing fungus mats *under* the bark of dead stubs of hardwood trees. The pore surface is yellowish or reddish-brown. Tubes are up to 2 cm. long; the pores 2 to 4 per mm., with moderately thick edges. Associated with a white heart rot of *Betula* and other northern hardwoods, where it forms externally sterile clinkerlike masses many years old on still living trees. Distributed in temperate North America, Europe, Siberia, and Japan.

Acer campestre: Austria.

Alnus sp.: Norway.

Betula sp.: Germany, Great Britain, Hungary, Japan, Yugoslavia.

B. costata: Siberia (Ussuri).

B. ermanii var. *communis*: Japan.

B. grossa: Japan.

B. maximowicziana: Japan.

B. pendula: Siberia (Omsk).

B. pubescens: Great Britain, Siberia (Omsk).

Fagus sylvatica: Austria, Germany, Denmark, Yugoslavia.

Quercus cerris: Hungary, Yugoslavia.

Q. mongolica: Siberia (Amur).

Q. petraea: Yugoslavia.

Sorbus aucuparia: Norway.

***Poria prunicola* (Murr.) Sacc. & Trott. (xx) heart rot**

Associated with a white rot of *Prunus* and other broad-leaved species in temperate countries. Distributed in North America and Japan.

Alnus sp.: Japan.

Poria rhizomorpha Bagchee (xx) **root rot**

Conk effused, thin, brittle, white to light-pinkish cinnamon; pores 4 to 6 per mm., walls thin. Forms abundant rhizomorphic strands on the rotted roots and debris in the soil where the fungus lives as a saprophyte and becomes actively parasitic. The rhizomorphs extend to 100 feet connecting one diseased tree to another and spreading the disease. It is endemic and attacks numerous broad-leaved trees. Distributed in India and Pakistan.

Gmelina arborea: India, Pakistan.

Melocanna baccifera: India, Pakistan.

Poria subacida (Pk.) Sacc. (xx) **butt rot**

Forms large fungus mats, white to cream, yellow, or buff, tubes corky to rigid, cartilaginous, up to 5 mm. long, the pores 2 to 4 per mm. It is associated with a pale yellowish rot of heartwood of coniferous and hardwood trees. Distributed commonly and widely in Alaska, Canada, and United States, Costa Rica, and Japan.

Abies veitchii: Japan.

Larix leptolepis: Japan.

Picea glehnii: Japan.

P. jezoensis: Japan.

Tsuga diversifolia: Japan.

Poria tsugina (Murr.) Sacc. & Trott. (xx) **heart rot**

Conk perennial, effused up to 30 cm. or more, almost woody, up to 3 cm. thick; margin yellowish-brown, pore surface grayish to yellowish-brown, tubes up to 7 mm. long each season, layers distinct, pores 6 to 7 per mm. Believed by some American authors to be a synonym of *Fomes hartigii* and *F. robustus* of the Old World. Associated with a white heart rot of conifers and hardwoods. Distributed widely in Alaska, British Columbia, New Brunswick, and northern United States; also reported in Japan.

Abies sachalinensis: Japan.

Tsuga diversifolia: Japan.

T. sieboldii: Japan.

Poria vaporaria (Fr.) Cke. (xx) **trunk rot**

Forms annual effused fungus mats, margin pale cream, narrow, pore surface cream, tubes soft-papery, up to 2 mm. long, mouths round to sinuous, 2 per mm. On coniferous trees entering injuries exposing the wood; associated with a brown heart rot. Distributed widely in Alaska, Canada, and the United States, South America, Europe, Siberia, Japan, and Australia.

Abies alba: Germany.

Picea abies: Germany, Norway, Sweden.

Pinus sylvestris: Germany, Sweden.

Poria weirii Murr. (xx) **butt rot**

Conk resupinate, soft-corky to rigid when dry, very light in weight, 2 to 10 cm. wide, brown to black, context tawny, spongy to soft-corky, 0.3 to 1 cm. thick, pore surface gray brown to dark brown, tubes 2 to

6 mm. long. Associated with laminated butt and root rot of *Thuja* and a few other conifers, especially young Douglas-fir in North America. Distributed in the Pacific Northwest, Alaska, British Columbia, and Japan.

Picea jezoensis: Japan.

Tsuga diversifolia: Japan.

Prillieuxina cinchonae Stevenson (xxx) **cinchona leaf spot**

Forms brown fungus pustules on spots along secondary veins from the leaf margin to midrib of *Cinchona*. Causes reddening of infected leaves which fall prematurely. Known in Costa Rica. This disease of a native forest tree may be a future threat to plantings in Costa Rica of other species from South America.

Cinchona pubescens: Costa Rica.

Prospodium suppressum Arthur (xxx) **rust**

Forms rust pustules on leaves of *Tabebuia*. Known in Trinidad.

Tabebuia sp.: Trinidad.

Pseudoperonospora portoricensis (Lamkey) Seaver & Chardon (xxx) **downy mildew**

Forms irregular, downy, diffuse, yellow areas on the lower surface of leaves of *Melia* causing premature defoliation. Known in Puerto Rico and Dominican Republic.

Melia azedarach: Puerto Rico, Dominican Republic.

Pseudopeziza populi-albae Kleb. (xx) **poplar leaf spot**

Forms erumpent pustules on leaves of *Populus* causing brown spots and premature defoliation. Known in Georgia, Iowa, and New York; also in Norway and Germany.

Populus alba: Germany.

P. balsamifera: Germany.

P. ×berolinensis: Norway.

P. nigra: Germany.

Puccinia aequitatis Cumm. (xxx) **rust**

Forms brown, pulvinate, deeply immersed telia on leaves of *Lindera* in China.

Lindera sp.: China.

Puccinia bassiae Samuel (xxx) **rust**

Forms orange or yellowish-brown to deep chestnut-brown rust pustules on leaves of *Bassia* in New South Wales and South Australia.

Bassia decurrens: New South Wales.

B. obliquicuspis: New South Wales.

B. paradoxa: New South Wales.

B. uniflora: New South Wales and South Australia.

Puccinia bombacis Diet. (xxx) **rust**

Forms brown rust pustules on leaves of unknown species of *Bombax*. Known in Colombia.

Bombax sp.: Colombia.

Puccinia camargoi Puttemans (xxx) **rust**

Forms rust pustules on leaves of *Melaleuca* in Brazil.

Melaleuca leucadendron: Brazil.

Puccinia coprosmae Cke. (xxx) **rust**

Forms umber rust pustules on rounded dark spots 1 cm. in diameter, on leaves of *Coprosma* in Australia and Tasmania.

Coprosma billardieri: Tasmania.

C. hirtella: Australia.

Puccinia cordiae Arth. (xxx) **rust**

Forms brown rust pustules on leaves and causes cankers on shoots and stems of *Cordia*, sometimes killing entire trees. Distributed in Puerto Rico, Guatemala, and Trinidad.

Cordia alliodora: Trinidad, Puerto Rico, Guatemala.

C. gerascanthus: Guatemala.

Puccinia coronopsora Cum. (xxx) **rust**

Forms chestnut-brown rust pustules on leaves of *Lindera* in China.

Lindera sp.: China.

Puccinia corticola Arth. & Rorer (xxx) **rust**

Forms rust pustules on leaves, twigs, branches, and trunks of *Cordia* in Trinidad. Large lesions are formed on trunks and branches.

Cordia gerascanthus: Trinidad.

Puccinia engleriana P. Henn. (xxx) **rust**

Forms yellowish-brown, later cinnamon-brown, rust pustules on leaves of *Tabernaemontana*. Distributed in India, New Guinea, and the Philippines.

Tabernaemontana sp.: New Guinea.

T. heyneana: India.

T. pandacaqui: Philippines.

Puccinia erebia Syd. (xxx) **rust**

Forms black, powdery rust pustules on leaves of *Clerodendrum*. Distributed in the Philippines, China, and India.

Clerodendrum inerme: China, India, Philippines.

C. minahassae: Philippines.

Puccinia filopes Arth. & Holw. (xxx) **rust**

Forms golden-brown rust pustules on leaves of *Buettneria*. Known in Costa Rica, Guatemala, and Colombia.

Buettneria carthaginensis: Colombia, Costa Rica.

B. lateralis: Guatemala.

Puccinia heliocarpi Syd. (xxx) **rust**

Forms pale yellow-brown telial rust spores on leaves of *Helicarpus* in Venezuela.

Helicarpus americanus: Venezuela.

Puccinia johnstonii Arth. (xxx) rust

Forms powdery, cinnamon-brown rust pustules, followed by chestnut-brown spores on leaves of *Dipholis* and *Sideroxylon* in Cuba.

Dipholis salicifolia: Cuba.

Sideroxylon foetidissimum: Cuba.

Puccinia kusanoi Diet. (xx) rust

Forms brown to black rust pustules on *Arundinaria* and *Sasa*. It has been proved by inoculations to have *Deutzia* as an alternate host. Known in Japan.

Semiarundinaria fastuosa: Japan.

Puccinia longicornis Pat. & Har. (xxx) bamboo rust

Forms yellow-brown to dark-brown rust pustules on leaves of *Arundinaria*, *Phyllostachys*, *Bambusa*, and *Sasa*. Distributed in China, Indochina, and Japan.

Bambusa arundinacea: China.

Phyllostachys sp.: China.

Puccinia phyllostachydis Kusano (xxx) bamboo rust

Forms powdery rust-brown to dark-brown or black rust pustules on leaves of *Phyllostachys* in Japan and China.

Phyllostachys bambusoides: Japan.

P. nigra var. *henonis*: China.

Puccinia psidii Wint. (xxx) rust

Forms powdery, pale, brownish-yellow rust pustules on leaves of numerous broad-leaved trees. Distributed in the West Indies and in Colombia, Venezuela, Ecuador, and Brazil.

Eucalyptus citriodora: Brazil.

Eugenia sp.: Brazil.

E. jambos: Colombia, Cuba, Jamaica, Puerto Rico.

Eugenia malaccensis: Jamaica.

Marlierea edulis: Brazil.

Pimenta dioica: Jamaica.

P. racemosa: Jamaica.

Puccinia spongiosa Berk. & Br. (xxx) rust

Forms rust pustules on leaves of *Chomelia* and *Tarenna*. Known in Ceylon and India.

Chomelia asiatica: India.

Pucciniastrum aceris Syd. (xxx) maple rust

Forms rust pustules on leaves of *Acer* in India and Pakistan.

Acer caesium: India, Pakistan.

A. mono f. *marmoratum*: Pakistan.

Pucciniastrum areolatum (Fr.) Otth (xxx) cherry-spruce rust

Forms white to yellowish rust pustules on leaves of *Prunus* with a later stage in the form of black-brown crusts which overwinter on

the *Prunus* leaves and start infection on *Picea* green cones the next spring. There, swollen, large, powdery yellow rust pustules form on the cone scales where the seeds especially are attacked and rendered abortive. Heavy attacks may seriously reduce the seed crop. Adventive in Santo Domingo. Distributed in temperate Europe, Siberia, Pakistan, China, Japan, Manchuria, and Sakhalin.

Picea abies: Czechoslovakia, Denmark, Estonia, France, Germany, Great Britain, Norway, Sweden, Switzerland.

P. jezoensis: Kamchatka, Siberia.

P. obovata: Siberia.

P. smithiana: Pakistan.

Pucciniastrum castaneae Diet. (xxx) **chestnut rust**

Forms yellow rust pustules on leaves of *Castanea* and *Castanopsis*. Distributed in China, India, Japan, Korea, Pakistan, and the Philippines.

Castanea crenata: Japan, Korea.

C. henryi: China.

C. mollissima: China.

Castanopsis sp.: Pakistan.

C. javanica: India.

Pucciniastrum coryli Kom. (xxx) **hazel rust**

Forms ochraceous rust pustules on leaves. Distributed in Russia, China, India, Japan, Korea, and Manchuria.

Corylus colurna: India.

C. heterophylla: China, Korea, Manchuria.

C. heterophylla var. *japonica*: Japan.

C. sieboldiana: Japan.

C. sieboldiana var. *mandshurica*: Korea.

Pucciniastrum epilobii Otth (xxx) **fir-willow-weed rust**

Forms cylindric rust pustules on leaves of *Abies*. The herbaceous *Epilobium* species are alternate hosts, bearing an early powdery, orange-yellow stage, and later flat, reddish-brown to blackish-brown crusts overwintering in the leaves. Distributed in North America from Newfoundland to Northwest Territory and Alaska, southward to Tennessee, New Mexico, and California; also in Europe, Siberia, Japan, and New Zealand.

Abies alba: Czechoslovakia, Denmark, France, Germany, Norway, Scotland, Switzerland.

A. grandis: Great Britain.

A. sibirica: Norway.

Pucciniastrum goeppertianum (Kuehn) Kleb. (xxx) **fir-blueberry rust**

Heteroecious. Forms white tubules on the lower side of true fir needles containing orange, powdery spores. These infect young growing stems of *Vaccinium*, which develop small upright perennial witches'-brooms with conspicuously enlarged twigs. The fungus overwinters in the brooms, and the spores develop at the time *Abies* needles push forth and promptly infect the new needles. Witches'-brooms

with annual needles form on *Abies*. Distributed in the North Temperate Zone wherever true firs form extensive stands; in North America southward into Mexico, in Europe, Siberia, and Japan.

Abies alba: Denmark, Germany, Great Britain, Switzerland.

A. nordmanniana: Great Britain.

A. sachalinensis: Japan.

A. sibirica: Siberia.

Pucciniastrum kusanoi Diet. (xxx) **fir-white alder rust**

Forms rust pustules on needles of *Abies* and cinnamon-brown rust pustules on leaves of *Clethra* in Japan.

Abies sachalinensis: Japan.

Pucciniastrum sparsum (Wint.) E. Fisch. (xxx) **spruce-Ericaceae rust**

In Europe this rust has a growth stage on needles of *Picea abies* Karst. and an alternate stage on leaves of *Arbutus* and *Arctostaphylos*. In North America the rust is not known on *Picea* but is widely distributed on the alternate hosts. It is able to live and persist without spruce.

Arbutus menziesii: Mexico.

A. xalapensis: Guatemala.

Picea abies: Switzerland.

Pucciniastrum styracinum Hirat. (xxx) **rust**

Develops as rust of leaves of *Styrax* in Japan.

Styrax japonica: Japan.

S. obassia: Japan.

Pucciniastrum tiliae Miyabe (xxx) **linden rust**

Forms yellow to brown rust pustules on leaves of *Tilia*. Distributed in Japan, China, and Manchuria.

Tilia amurensis: China, Manchuria.

T. japonica: Japan.

T. mandshurica: China.

T. tuan: China.

Pyrenochaeta filarszkyi Bub. (xxx) **linden leaf spot**

Associated with yellow leaf spots on *Tilia* in Hungary.

Tilia cordata: Hungary.

Pythium artotrogus (Mont.) d By. (xxx) **damping-off**

Causes severe root rot of germinating seedlings mostly before they emerge above ground. Heavy losses may occur. Cultures are necessary to determine what fungus is causing the trouble, as several may cause similar symptoms of disease. High soil moisture favors trouble by various damping-off fungi. This *Pythium* appears to be more parasitic on conifers than most species of *Pythium*. Distributed widely in the United States and Netherlands.

Pseudotsuga menziesii: Netherlands.

Pythium debaryanum Hesse (xxx)**root rot**

This is one of two species of *Pythium* most often encountered. This species is known to attack a large number of herbaceous hosts and a considerable number of woody plants, especially seedlings. Distributed in the United States, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, Hawaii, Europe, and Asia.

Abies alba: Switzerland.

Acer sp.: Bulgaria.

Chamaecyparis obtusa: Japan.

Picea abies: Switzerland.

Pinus khasya: Philippines.

P. massoniana: Philippines.

P. mugo var. *rostrata*: Norway.

P. nigra: Italy.

P. strobus: Bulgaria.

P. sylvestris: Bulgaria, Netherlands, Norway.

Pythium intermedium d By. (xx)**root rot**

Chiefly parasitic on herbaceous plants and prothallia of ferns, but occasionally on *Ulmus* by inoculations. Distributed in the United States and Europe.

Ulmus × *hollandica* var. *belgica*: Netherlands.

Pythium torulosum Coker & Patterson (xx)**root rot**

Occurs in decayed roots of *Abies*, *Pinus*, and herbaceous plants. Distributed in North Carolina, Missouri, and Europe.

Abies grandis: Netherlands.

Pinus sylvestris: Netherlands.

Pythium ultimum Trow. (xx)**root rot**

This is perhaps the most common species of *Pythium* in the United States, and is frequently reported widely distributed over the tropical and temperate regions of the world. A number of woody plants, including conifers, are attacked, sometimes very severely.

Cupressus sp.: Rhodesia.

Pinus sp.: Argentina.

Pythium vexans d By. (xx)**root rot**

Like many species of *Pythium* this one lives in moist soil as a saprophyte on dead plant remains, but is quite ready to attack living roots and lower stems at the soil surface. Numerous herbaceous species and a few woody plants are known susceptibles of this parasite. Distributed widely in the United States, Hawaii, Europe, Tanganyika, Union of South Africa, India, Indochina, and Malaya.

Cinchona officinalis: India.

C. pubescens: India.

Durio zibethinus: Malaya.

Hevea brasiliensis: Indochina, Malaya.

Quaternaria persoonii Tul. (xx)

Forms circular thickened fungus pads under the epidermis of wounded branches and stems of northern temperate hardwood trees.

Spores are expelled from tubular necks pushed through the epidermis. Lesions are produced in bark of living trees. Distributed widely in North America and Europe.

Fagus sylvatica: Belgium, Denmark.

Ramularia bauhiniae Ell. & Ev. (xxx) leaf spot

Develops as a powdery, white mildew on the lower side of leaves in Jamaica.

Bauhinia divaricata: Jamaica.

Ramularia catappae Rac. (xx) leaf spot

Associated with rounded ashen spots with dark red margins on leaves of *Terminalia* in the Philippines and Java.

Terminalia catappa: Java.

Ramularia necator Mass. (xxx) cacao damping-off

Forms a white mold on cotyledons and seeds of *Theobroma*, resulting in damping-off of young seedlings. Known in British West Indies.

Theobroma cacao: Dominica and Jamaica.

Ramularia rosea (Fckl.) Sacc. (xxx) willow leaf spot

Occurs on brownish spots on leaves of *Salix*. Distributed in Wisconsin, Colorado, Montana; also in Germany, England, Italy, and Peru.

Salix humboldtiana: Peru.

Ramulaspera salicina (Vest.) Lindr. (xx) willow leaf spot

Occurs on violet leaf spots on *Salix*. Distributed in Sweden, Finland, Austria, and Norway.

Salix glauca: Norway.

S. hastata: Norway.

S. lanata: Norway.

S. lapponum × *herbacea*: Norway.

Ravenelia acaciae-farnesiana P. Henn. (xxx) rust

Develops as rust pustules on petioles of leaves on young branches of *Acacia*. Known in Brazil.

Acacia farnesiana: Brazil.

Ravenelia acaciae-melliferae Bacc. (xxx) rust

Forms rust pustules on leaves of *Acacia* in Ethiopia.

Acacia mellifera: Ethiopia.

Ravenelia acaciae-pennatulae Diet. (xxx) rust

Forms powdery, cinnamon-brown to blackish-brown rust pustules on the upper surface of leaves of *Acacia*. Known in Mexico and Guatemala.

Acacia pennatula: Guatemala.

- Ravenelia amazonica** Syd. (xxx) rust
 Forms rust pustules on leaves of *Pithecellobium* in Brazil.
Pithecellobium glomeratum: Brazil (Bonfim).
- Ravenelia armata** Syd. (xxx) rust
 Produces brown rust pustules on *Calliandra* in Brazil.
Calliandra sp.: Brazil (Boraima).
- Ravenelia australis** Diet. & Neg. (xxx) sweet acacia rust
 Develops as dark-brown rust pustules on leaves of *Acacia* in Chile.
 The same fungus is reported on the same host in Texas.
Acacia cavenia: Chile.
- Ravenelia bizonata** Arth. & Holw. (xxx) rust
 Forms brown, powdery rust pustules on leaves of *Calliandra* in Guatemala.
Calliandra houstoniana: Guatemala.
- Ravenelia cebil** Speg. (xxx) rust
 Forms rusty-brown rust pustules on *Piptadenia* in Argentina and Puerto Rico.
Piptadenia peregrina: Puerto Rico.
- Ravenelia dieteliana** P. Henn. (xxx) rust
 Develops as brown rust pustules on leaves of *Calliandra* in Brazil and Formosa.
Calliandra macrocephala: Brazil.
- Ravenelia echinata** Lagh. & Diet. (xxx) rust
 Forms cinnamon-brown to black rust pustules on leaves of *Calliandra*. Known in Ecuador and Venezuela.
Calliandra caracasana: Venezuela.
- Ravenelia ectypa** Arth. & Holw. (xxx) rust
 Forms brown rust on leaves of *Calliandra*. Distributed in Costa Rica, Guatemala, and Bolivia.
Calliandra chapaderoana: Guatemala.
C. gracilis: Costa Rica, Guatemala.
C. laxa: Bolivia.
- Ravenelia evansii** H. & P. Syd. (xxx) rust
 Develops as brown to black rust pustules on leaves of *Acacia* in the Union of South Africa.
Acacia robusta: Union of South Africa (Pretoria).
- Ravenelia expansa** Diet. & Holw. (xxx) rust
 Forms cinnamon-brown to chestnut-brown rust pustules on both surfaces of *Acacia* leaves. Distributed in Mexico.
Acacia angustissima: Mexico.
A. cochliacantha: Mexico.
A. tequilana: Mexico.

Ravenelia farlowiana Diet. (xxx) rust

Forms chestnut-brown to dark-brown rust pustules on leaves of *Acacia* in Mexico.

Acacia anisophylla: Mexico.

A. crassifolia: Mexico.

Ravenelia formosana Syd. (xxx) rust

Develops rust pustules on leaves of *Acacia* in Formosa.

Acacia farnesiana: Formosa.

Ravenelia goyazensis P. Henn. (xxx) rust

Develops as dark-brown rust pustules on leaves of *Andira* in Brazil.

Andira pisonis: Brazil.

Ravenelia hassleri Speg. (xxx) rust

Forms rust pustules on leaves of *Enterolobium* in Paraguay.

Enterolobium contortisiliquum: Paraguay.

Ravenelia henningsiana Diet. (xxx) rust

Develops as yellow-brown to dark-brown rust pustules on leaves of *Piptadenia* in Brazil.

Piptadenia sp.: Brazil.

Ravenelia japonica Diet. & Syd. (xxx) rust

Develops as cinnamon-brown to dark-brown rust pustules on leaves and branches of *Albizia* in Japan and China.

Albizia julibrissin: China, Japan.

A. kalkora: China.

Ravenelia lagerheimiana Diet. (xxx) rust

Forms brown rust pustules on leaves of *Calliandra* in Ecuador.

Calliandra falcata: Ecuador.

Ravenelia leucaenae Long (xxx) rust

Forms brown, powdery rust pustules on leaves of *Leucaena* in Mexico.

Leucaena diversifolia: Mexico.

L. esculenta: Mexico.

Ravenelia leucaenae-microphyllae Diet. (xxx) rust

Develops as brown rust pustules on leaves of *Leucaena*. Distributed in Mexico, Guatemala, and Brazil.

Acacia sp.: Brazil.

A. angustissima: Guatemala.

Ravenelia lysilomae Arth. (xxx) rust

Forms yellow-brown to chestnut-brown rust pustules on leaves of *Lysiloma* in Mexico and Cuba.

Lysiloma bahamensis: Cuba.

L. tergemina: Mexico.

Ravenelia macowaniana Patschke (xxx) **rust**

Forms a cupulate stage of rust on deformed pods and young branches, and brown pustules on leaves of *Acacia* in Central and South Africa.

Acacia seyal: Congo.

Ravenelia mexicana Tranz. ex Diet. (xxx) **rust**

Forms brown rust pustules on leaves of *Calliandra* in Mexico.
Calliandra grandiflora: Mexico.

Ravenelia minuta Syd. (xxx) **rust**

Develops as leaf rust on *Pithecellobium* in Brazil and Peru.
Pithecellobium sp.: Peru.

Ravenelia natalensis H. & P. Syd. & Evans. (xxx) **rust**

Forms rust pustules on branches of *Acacia* in the Union of South Africa.

Acacia hirtella: Union of South Africa (Natal).

Ravenelia pithecolobii Arth. (xxx) **rust**

Produces cinnamon-brown to chestnut-brown rust pustules on leaves of *Pithecellobium*. Distributed in Florida, Cuba, Puerto Rico, Mexico, Colombia, and Venezuela.

Pithecellobium dulce: Mexico, Venezuela.

P. lanceolatum: Colombia.

P. tortum: Cuba.

P. unguis-cati: Puerto Rico.

Ravenelia sessilis Berk. (xxx) **albizia rust**

Forms yellow-brown to black rust pustules on leaves and pods of *Albizia*. Distributed in India, Ceylon, China, and Pakistan.

Albizia lebbek: India, Pakistan.

Ravenelia sololensis Arth. & Holw. (xxx) **rust**

Develops as powdery, dark chestnut-brown rust pustules on leaves and fruits of *Lysiloma*. Distributed in Guatemala and Mexico.

Lysiloma acapulcensis: Guatemala.

Ravenelia spegazziniana Lindquist (xxx) **rust**

Develops as rust pustules on pods of *Acacia*. Distributed in Texas and New Mexico, Hawaii, Mexico, Guatemala, Cuba, and Puerto Rico.

Acacia farnesiana: Cuba, Guatemala, Puerto Rico.

Ravenelia taslimii Mund. (xxx) **rust**

Forms amphigenous, chestnut-brown rust spore bodies on petioles and branches of *Acacia* in India and Pakistan.

Acacia modesta: India, Pakistan.

Readeriella mirabilis Syd. (xx) **leaf spot**

Occurs on rounded, sunken, dull-brown spots on leaves of *Eucalyptus* in Victoria and Mauritius.

Eucalyptus robusta: Mauritius.

Rehmiellopsis abietis (E. Rostr.) O. Rostr. (xxx) **fir tip blight**

Blights the newly formed needles of the current year on *Abies*. In severe attacks most of the new needles are killed and the shoots die back. Repeated attacks may kill entire trees. Poor site conditions appear to induce attacks. Distributed in northern Europe; a single occurrence was reported in British Columbia.

Abies alba: Czechoslovakia, Denmark, Great Britain, Norway.

A. cephalonica: Denmark, Norway, Scotland.

A. nordmanniana: Denmark.

A. pindrow: Scotland.

A. pinsapo: Denmark, Norway, Scotland.

A. sibirica: Norway.

Rhizina undulata Fr. (xx) **root rot**

Associated with root rot of conifers locally where fire has been a year or two before. Forms effused, undulant, brownish-black fungus bodies on the ground, brittle-fleshy, pallid, floccose below with rootlike tendrils reaching into the soil beneath and starting from roots injured by fire. Distributed in North America and Europe.

Abies alba: Germany.

Castanea sativa: Germany.

Larix decidua: England (Bristol), Germany.

L. leptolepis: England (Bristol).

Picea abies: Germany.

Pinus nigra var. *poiretiana*: England (Bristol).

P. pinaster: France.

P. sylvestris: England (Bristol), France, Germany.

Rhizoctonia choussii Crandall & Arillaga (xx) **root rot**

Associated with black root rot of broad-leaved woody plants killing roots, rootlets, and lower trunks. Known in El Salvador.

Coffea arabica: El Salvador.

Leucaena glauca: El Salvador.

Rhizoctonia lamellifera Small (xxx) **root rot**

This fungus parasite occurs as fungus strands and webs largely buried in decayed roots or on their surface, with no organized conks. Diseased trees have wilted and brown leaves, which stage is followed by staghead and final death. Blackened areas with exudate show on the lower trunk. Diseased tissues are brown and filled with gum. The rotted roots may be covered with a thin fungus layer. Numerous small black sclerotia form in rotted parts, together with sheets of black fungus tissue. It attacks many broad-leaved trees in Uganda and conifers in South Africa.

Bixa orellana: Uganda.

Cupressus sp.: Uganda.

Grevillea robusta: Uganda.

Pinus echinata: Union of South Africa.

P. muricata: Union of South Africa.

P. pinaster: Union of South Africa.

P. radiata: Union of South Africa.

Rhizosphaera kalkhoffii Bub. (xxx)

mottled leaf cast

Usually in late summer conifer needles of the current season become mottled with yellow. The affected needles fall the next summer, leaving only those of the new current season. Repeated attacks result in the trees having but a single set of needles. Such trees decline slowly and finally die. The disease begins on the lower branches, killing them and progressing upward. The disease is known only on spruces in the Eastern United States, and in Southern Quebec mostly on *Picea pungens*, but is not known in the native range of this tree. It is known in Europe, on spruces, firs, pines, and Douglas-firs. Its original home is not known. In Great Britain it is reported as killing 14- to 20-year-old trees. Distributed in Eastern Canada and United States and in Europe.

Picea abies: Netherlands, Norway, Scotland.

P. orientalis: Scotland.

P. schrenkiana: Scotland.

Pinus mugo: Great Britain.

P. nigra: Great Britain.

Rhytisma acerinum Fr. (xxx)

maple tar spot

Maple leaf tar spot forms black, shiny, thickened, slightly raised blotches up to 1.5 cm. in diameter, on the upper surface of *Acer* leaves. Many species of maple are attacked in North America, Europe, and Asia. Severe infection causes early leaf fall, but usually damage is not serious.

Acer caesium: India.

A. campestre: Denmark, Germany.

A. cissifolium: Japan.

A. japonicum: Japan.

A. mono: Japan.

A. orientale: Cyprus.

A. palmatum: Japan.

A. palmatum var. *matsumurae*: Japan.

A. platanoides: Belgium: Denmark, Estonia, Germany, Norway, Russia.

A. pseudoplatanus: Belgium, Denmark, Great Britain, Finland, France, Germany, Italy, Norway, Sweden.

Rhytisma eucalypti P. Henn. (xxx)

tar spot

Forms opaque black fungus cushions on dull brown, rounded spots on leaves of *Eucalyptus* in Australia.

Eucalyptus diversifolia: Australia.

Rhytisma punctatum Fr. (xxx)

maple tar spot

Forms yellowish spots up to 2 cm. across on leaves of *Acer* with numerous small tar spots on each leaf spot. Distributed widely in Canada, the United States, Europe, China, and Japan.

Acer aidzuensis: Japan.

- A. campestre*: Denmark.
A. caudatum var. *prattii*: China.
A. × coriaceum: Japan.
A. japonicum: Japan.
A. nikoense: Japan.
A. palmatum var. *matsumurae*: Japan.
A. pseudoplatanus: Denmark, Germany, Great Britain.

Rhytisma salicinum Fr. (xxx)**willow tar spot**

Much thickened tar spots, 0.5 to 0.7 mm. across, form on the upper surface of leaves of *Salix*. Distributed widely in North America southward to the northern Mexican border; also in Europe and Asia.

- Acer japonicum*: Japan.
A. palmatum: Japan.
Salix sp.: Great Britain, Russia.
S. aurita: Denmark.
S. bakko: Japan.
S. caprea: Denmark, Germany, Norway.
S. cinerea: Denmark, Germany.
S. formosa: Norway.
S. gilgiana: Japan.
S. glauca: Norway.
S. hastata: Denmark, Norway.
S. herbacea: Norway.
S. integra: Japan.
S. myrsinifolia: Denmark, Norway.
S. myrsinites: Norway.
S. phlomoides: Siberia.
S. phylicifolia: Norway.
S. polaris: Norway.
S. purpurea: Austria.
S. purpurea f. *gracilis*: Czechoslovakia.
S. pyrolaefolia: Siberia.
S. reinii: Japan.
S. repens: Denmark, Norway.
S. reticulata: Germany.
S. × smithiana: Denmark.
S. tetrasperma: India.
S. vulpina: Japan.

Roestelia guatemalana (Crowell) Cumm. (xxx)**rust**

Forms rust pustules on leaves of *Amelanchier* in Guatemala.

Amelanchier nervosa: Guatemala.

Rosellinia aquila (Fr.) de N. (xxx)**root rot**

There are a number of *Rosellinia* species that cause root rot of trees, mostly of younger ages. They look much alike, cause similar symptoms, and are apt to attack both broadleaves and conifers. All seem to be favored by wet soils. Wilting of entire plants or terminal shoots, soon followed by death of the plant, is the chief signal of trouble. Affected roots are covered with white strands of mycelium on the outside or between the bark and wood. Sclerotial fungus masses form on the strands. Finally, tiny, black, globular bodies form which con-

tain the reproduction spores. The fungus can live in the soil saprophytically on dead plant material, but is very ready to attack living roots.

Rosellinia aquila attacks conifers and broad-leaved trees, especially *Quercus*, from Alaska to Texas, Bermuda, and Guatemala; also in Europe and Japan.

Betula sp.: France.

Coffea arabica: Guatemala.

Morus sp.: France.

Picea sp.: Denmark.

P. abies: Scotland.

Pinus mugo: Denmark.

Quercus sp.: France, Japan.

***Rosellinia arcuata* Petch (xxx)**

root rot

Associated with rotting of bark at the root collar and on larger roots, forming a white mycelial layer between the bark and wood. A layer of purple-gray to black mycelium forms around the stems up to about 6 inches above ground. Numerous broad-leaved trees are attacked, wilt, and die. Distributed in Ceylon, India, Java, Sumatra, and the Gold Coast of Africa.

Leucaena glauca: Java, Sumatra.

Theobroma cacao: Gold Coast.

***Rosellinia bunodes* (Berk. & Br.) Sacc. (x)**

black root rot

Causes black root and crown rot of many diverse broad-leaved trees especially in tropical regions. The disease is prevalent and is reported to be most serious in the West Indies, much of the serious disease of woody plants in the East Indies being attributed to other root pathogens. *Rosellinia bunodes* is reported from Mexico, Jamaica, St. Lucia, Trinidad, Colombia, Peru, Brazil, Congo, India, Ceylon, Java, Sumatra, Malaya, and the Philippines.

Artocarpus heterophyllus: Ceylon.

Bixa orellana: Jamaica.

Coffea arabica: Colombia, Jamaica, Java, Peru.

Dryobalanops aromatica: Malaya.

Erythrina sp.: St. Lucia.

Grevillea robusta: India.

Hevea brasiliensis: Brazil, Ceylon, Java, Sumatra.

Holigarna longifolia: India.

Leucaena glauca: Java, Sumatra.

Litsea angustifolia: India.

L. wightiana: India.

Persea americana: Jamaica, Peru.

Schleichera oleosa: India.

Theobroma cacao: Brazil, Mexico, Jamaica, St. Lucia, Trinidad.

***Rosellinia necatrix* Prill. (xxx)**

white root rot

Forms fluffy white mycelial webs on diseased roots and bases of stems. Minute sclerotia are formed in the cortical tissues. Also black perithecia appear scattered among the fungus filaments. Many kinds

of trees and herbs are attacked. Distributed in California, Europe, Iraq, India, and Japan.

Acer pseudoplatanus: Italy.

Juglans regia: Italy.

Morus sp.: France, Italy, Japan.

Pistacia vera: Iraq.

Rosellinia paraguayensis Starb. (xx)

cacao root rot

Associated with root rot in Mexico.

Theobroma cacao: Mexico.

Rosellinia pepo Pat. (xx)

white root rot

Forms an irregular, black web over diseased roots. White strands grow out from this layer through the bark, and penetrate the wood along the medullary rays. Occurs on rotted roots of numerous tropical trees in Mexico, Central America, Brazil, Dominican Republic, Jamaica, St. Lucia, and New Guinea.

Coffea arabica: Jamaica.

Theobroma cacao: Brazil, Mexico, Dominican Republic, St. Lucia.

Rosellinia quercina Hartig (xx)

root rot

Associated with root rot of young broad-leaved trees, especially *Quercus*. It forms white to brown delicate webs of mycelium on the surface of diseased roots. Black, spheroid perithecia the size of pin-heads develop on the affected roots. Known in Europe and Japan.

Acer pseudoplatanus: Denmark.

Fagus sylvatica: Denmark.

Quercus cerris: England.

Q. petraea: England.

Q. robur: Denmark, England.

Rosellinia radiciperda Mass. (xx)

root rot

Occurs on rotted roots of orchard fruit trees, *Abies*, and native trees in New Zealand. Stagnant water favors its attacks. Well-cultivated land is said to be free from this serious disease, but when the forest is newly cleared it becomes severe. It appears to be limited to New Zealand.

Castanea sativa: New Zealand.

Eucalyptus sp.: New Zealand.

Schiffnerula monothea (Pat. & Gaill.) Petr. (xxx)

powdery mildew

Powdery mildew with ascogenous stage present on *Rapanea*. Known in Colombia, Venezuela, and Brazil.

Rapanea ferruginea: Colombia.

Schiffnerula robusta Orejuela (xxx)

powdery mildew

Fungus colonies on lower surface of leaves of *Rapanea*, 4 mm. across, black; perithecia scattered, 8-spored, ascospores septate near the middle, somewhat constricted at the septa, smoky brown and smooth. Known in Colombia.

Rapanea sp.: Colombia.

Schizochora elmeri Syd. (xx) **black spot**

Forms rounded, dull-black fungus spots on the lower surface of leaves of *Ficus*. Known in the Philippines.

Ficus guyeri: Philippines.

Schizophyllum commune Fr. (xx)

A small, gray, fan-shaped, leathery-textured conk, downy above, with duplex gills below, each with two distinct leaves back to back. A wound parasite causing a white sapwood rot, especially within sun-scorched bark of living trees. Distributed generally in North America, Venezuela, Europe, Asia, and Union of South Africa.

Acacia decurrens: Union of South Africa.

A. decurrens var. *mollis*: Union of South Africa.

A. scorpioides: India.

Aesculus hippocastanum: France.

Castanea crenata: Japan.

Dalbergia sissoo: India.

Diospyros discolor: Philippines.

Fagus moesiaca: Yugoslavia.

F. sylvatica: Germany.

Mangifera indica: India.

Pterocarpus indicus: Malaya.

Shorea robusta: India.

Schizothyrium annuliforme Syd. & Butl. (xxx) **maple leaf blotch**

Occurs on large discolored blotches on leaves of *Acer* in India.

Acer oblongum: India.

Schroeteriaster ehretiae (Hirat. f.) H. & P. Syd. & Butl. (xxx) **rust**

Forms rust pustules on leaves of *Ehretia*. Distributed in Japan, China, Formosa, India, and Pakistan.

Ehretia sp.: China.

E. acuminata: Pakistan, India, Formosa.

E. thyrsoiflora: Japan.

Scirrha acicola (Dearn.) Siggers (xx) **leaf spot**

Found apparently causing defoliation of *Pinus radiata* in Spain, the first known occurrence of this fungus in Europe. This pine is planted in numbers among other pines but is threatened by this fungus and others. *P. radiata* is the only pine severely attacked by this fungus, appearing like a new host for it. In the United States young *P. palustris* is attacked throughout its range and requires special treatment to keep this parasite under control until the seedlings begin to grow vigorously in height. Distributed in Oregon, from North Carolina to Texas, and inland in Arkansas, Tennessee, and Ohio; also in Spain.

Pinus nigra: Spain.

P. radiata: Spain.

Scleroderris abietina (Lager.) Gremmen (xx) pine dieback

Associated with dieback of shoots and branches of *Pinus*, killing trees in severe outbreaks. Distributed in Norway, Russia, Sweden, Great Britain, Denmark, Finland, Germany, Hungary, Netherlands, and Spain. Proved pathogenic by inoculations in buds and wounds.

Picea abies: Denmark, Netherlands, Norway, Sweden.

Pinus cembra: Denmark, Great Britain, Norway.

P. griffithii: Denmark.

P. mugo: Denmark, Germany, Great Britain, Norway, Russia.

P. mugo var. *rostrata*: Norway.

P. nigra: Belgium, Denmark, Great Britain, Netherlands, Norway, Wales.

P. nigra var. *poiretiana*: Great Britain, Netherlands.

P. pinaster: Spain.

P. radiata: Spain.

P. sylvestris: Belgium, Denmark, Hungary, Great Britain, Netherlands, Norway, Russia, Spain.

Scleroderris fuliginosa (Fr.) Karst. (xx) willow canker

Occurs on branches of *Salix*, associated with dying of the distal ends. Forms tiny cups, dark brown with pallid interior, thickly crowded together on dead bark. Distributed in Colorado and Ontario in North America; also in Europe.

Salix alba: Denmark, Germany.

S. amygdalina: Germany.

S. caprea: Germany.

S. daphnoides: Denmark, Germany.

S. fragilis: Scotland.

S. rubens: Denmark.

S. × smithiana: Denmark.

S. undulata: Germany.

Sclerotinia kitajimana Ito & Hosaka (xx) blight

Associated with *Botrytis cinerea* under snow melting in the spring. This fungus causes serious losses of young seedlings of *Cryptomeria* in Japan.

Chamaecyparis obtusa: Japan.

Cryptomeria japonica: Japan.

Larix leptolepis: Japan.

Pinus densiflora: Japan.

Sclerotinia sclerotiorum (Lib.) d By. (xxx) wilt

Causes dying of seedlings and shoots of older woody plants, and wilting of leaves of a great variety of plants. Much damage is caused to cultivated crops as well as wild plants. Distributed widely in the United States, Europe, Morocco, China, and Formosa.

Morus alba: Bulgaria.

Sophora flavescens: China.

Sclerotium coffeicola Stahel (xx) leaf spot

Forms small greenish-brown or orange-brown sclerotia on dark-brown concentric spots on leaves and fruits of *Coffea* and other broad-

leaf trees. Distributed in Surinam, British Guiana, and Trinidad.

Cecropia peltata: British Guiana.

Coffea arabica: British Guiana.

C. dewevrei: British Guiana.

C. liberica: British Guiana, Surinam, Trinidad.

Sclerotium delphinii Welch (xxx) **seedling rot**

Resembles *Sclerotium rolfsii* (sporogenous stage *Pellicularia rolfsii*) so closely that some mycologists consider them identical. Both cause root and basal stem rot of numerous plants, including a number with woody stems, in the succulent seedling stage. *S. delphinii* is credited with destroying many young mahogany and mango seedlings in the Philippines. Distributed in northern United States (while *S. rolfsii* likes higher temperatures) and the Philippines.

Mangifera indica: Philippines.

Swietenia macrophylla: Philippines.

Scolecotrichum heveae Vincens (xx) **leaf spot**

Associated with small brown spots on leaves of *Hevea*. The centers of the spots drop out finally. Known in Brazil.

Hevea brasiliensis: Brazil.

Scopella bauhiniicola Cumm. (xxx) **rust**

Forms yellowish, pulverulent to waxy fungus pustules on leaves of *Bauhinia*. Distributed in Cuba and Brazil.

Bauhinia heterophylla: Cuba, Brazil.

B. rubiginosa: Brazil.

Scopella echinulata (Niessl) Mains (xxx) **rust**

Forms chocolate-brown, later cinereous, powdery rust pustules on leaves of *Madhuca*. Distributed in Ceylon, India, and Pakistan.

Madhuca bourdillonii: India.

M. indica: India, Pakistan.

M. longifolia: Ceylon, India.

Scopella fici Mund. & Thirum. (xxx) **fig rust**

Forms amphigenous, orange-yellow, erumpent, waxy rust mats on leaves in India.

Ficus sp.: India.

Scopella lucumae (Diet.) Cumm. (xxx) **rust**

Forms amphigenous, powdery, yellowish spore pustules on leaves of *Pouteria* in Brazil.

Pouteria caimito: Brazil.

Scopella palaquii Cumm. (xxx) **rust**

Forms subepidermal, pale yellow, powdery fungus pustules on leaves in Brazil.

Palaquium sp.: Brazil.

Scopella sapotae Mains ex Cumm. (xxx) rust

Forms powdery, dark cinnamon-brown to pale yellowish pustules, later waxy spore mats on leaves of *Achras*. Distributed in Florida, the West Indies, British Honduras, and Venezuela.

Achras zapota: Bahamas, Bermuda, British Honduras, Cuba, Dominican Republic, Venezuela.

Septogloeum elasticae Koord. (xx) leaf spot

Forms subepidermal, erumpent conidial pustules on light-brown spots on leaves of *Ficus* in Java.

Ficus elastica: Java.

Septogloeum hartigianum Sacc. (xxx) maple leaf spot

Infects young twigs of *Acer* in early summer, but remains dormant until growth starts the next spring. Then the buds swell but soon wither and the twigs die. Small, greenish fungus cushions form under the epidermis and break through it, setting free the conidia for further attacks. Known in Germany, Switzerland, and Italy.

Acer campestre: Germany.

Septogloeum salicinum (Pk.) Sacc. (xxx) willow leaf spot

Forms whitish fungus pustules scattered on brown spots on the upper surface of leaves. Distributed in Alaska, New York, Wisconsin, and Ontario in North America; also in northern Europe.

Salix caprea: Denmark.

S. viminalis: Great Britain.

Septoria abeliceae Hirayama (xxx) leaf spot

Produces conidial pustules on small, dark-brown spots on leaves of *Zelkova*. The centers turn gray with an outer zone of purplish to dark brown, and tend to fall out, giving a shothole effect. Seedling and sprout leaves are especially susceptible, and seedlings are killed by thousands. The disease is present in all Japan where *Zelkova* is grown.

Zelkova serrata: Japan.

Septoria acuum Oud. (xx) pine needle spot

Forms small fungus pustules on needles of *Pinus*. Distributed in Netherlands, Denmark, Russia, and Great Britain.

Pinus sylvestris: Great Britain.

Septoria aesculi (Lib.) West. (xxx) leaf spot

Forms fungus pustules on numerous, small spots, brown to whitish with age, bordered by a narrow fuscous line, on leaves of *Aesculus*. Distributed to a limited extent in North America; widely present in Europe.

Aesculus hippocastanum: Germany.

Septoria aesculina Thuem. (xxx) leaf spot

Forms fungus pustules on leaf spots on *Aesculus*. Said to be heavy at times in California on *A. californica* Nutt., but this tree has such a

short vegetative season in dry California summers that it survives defoliation indefinitely. Distributed in Europe in Austria, France, and Portugal.

Aesculus hippocastanum: Austria, France, Portugal.

Septoria alni Sacc. (xxx) **alder leaf spot**

Forms conidial pustules on brown spots on the upper surface of leaves. Distributed in Alaska, California, Oregon, Washington, and Wisconsin in North America; also in France, Italy, and Japan.

Alnus pendula: Japan.

Septoria alnicola Cke. (xxx) **alder leaf spot**

Associated with brown spots on leaves. Distributed in New York; also in Europe and Japan.

Alnus glutinosa: Great Britain.

Septoria arcuata Cke. (xxx) **leaf spot**

Forms conidial pustules on white circular spots with purple edges on leaves of *Ficus*. Distributed in India and Abyssinia.

Ficus bengalensis: India.

F. benjamina: India.

F. indica: India.

Septoria betulina Pass. (xxx) **birch leaf spot**

Conidial pustules occur on irregular gray spots on leaves. Distributed in Wisconsin, Denmark, Tyrol, Italy, Russia, and Siberia.

Betula pendula: Russia (Kazan).

B. rotundifolia: Siberia.

Septoria cercidis Fr. (xxx) **redbud leaf spot**

Forms fungus pustules on chestnut-brown spots, 1 to 3 mm. across, on the upper side of leaves. Distributed in Europe. Known in Argentina—1944, the first record for the country.

Cercis siliquastrum: Argentina.

Septoria cocoas Petch (xxx) **palm leaf spot**

On leaves of *Cocos* and *Borassus*. Distributed in Ceylon and Seychelles.

Borassus flabellifer: Seychelles.

Septoria fraxini Desm. (xxx) **ash leaf spot**

Associated with brown spots on leaves. Distributed widely in the United States and Europe.

Fraxinus excelsior: Belgium, France, Germany, Great Britain, Italy, Portugal.

Septoria macluræ Brun. (xxx) **leaf spot**

Conidial pustules form on olive to dull-yellow spots on leaves of *Maclura* in France.

Maclura pomifera: France.

Septoria marmorata Kab. & Bub. (xxx) **poplar leaf spot**

Forms fungus pustules on brown, then pale-yellow spots on leaves of *Populus*. Known in Italy and Denmark.

Populus tremula: Italy.

Septoria meliae Syd. (xxx) **leaf spot**

Occurs on small, circular, white spots on leaves of *Melia* causing considerable defoliation. Known in Tanganyika.

Melia azedarach: Tanganyika.

Septoria miconiae Garman (xxx) **leaf spot**

Occurs on circular leaf spots about 1.2 mm. across, with a white center and a brown distinctly raised margin, in Puerto Rico.

Miconia impetiolaris: Puerto Rico.

M. laevigata: Puerto Rico.

Septoria orni Pass. (xxx) **ash leaf spot**

Occurs on dull-brown, effuse spots on leaves of *Fraxinus*. Distributed in Denmark, France, and Italy.

Fraxinus excelsior: Denmark.

Septoria petitiæ Garman (xxx) **leaf spot**

Forms conidial pustules on leaf spots 1 to 2 mm. in diameter, with white centers and brownish margins in Puerto Rico.

Petitia domingensis: Puerto Rico.

Septoria pistacina Allesch. (xxx) **pistache leaf spot**

Occurs on numerous small, brownish spots on leaves. Known in southern Europe and Syria.

Pistacia lentiscus: Syria.

P. terebinthus: Greece.

P. vera: Greece, Syria.

Septoria quercina Desm. (xxx) **oak leaf spot**

Forms fungus pustules on small, rounded, dry, whitish spots with broad brown borders on leaves. Distributed widely in Europe; also in Japan.

Quercus sp.: Japan, Norway, Russia.

Q. robur: Great Britain.

Septoria salicicola Sacc. (xxx) **willow leaf spot**

Conidial pustules form on circular brown spots on leaves. Distributed widely in the United States, Europe, and in Siberia.

Salix sp.: Austria, Great Britain, Siberia.

S. amygdalina: Russia.

S. lanata × *hastata*: Norway.

Septoria unedonis Rob. & Desm. (xxx) **leaf spot**

Conidial pustules form on small, irregular, whitish spots with purple margins on leaves of *Arbutus*. Distributed in Oregon, nearly all of Europe, and in Algeria.

Arbutus unedo: Austria, France, Great Britain, Greece, Italy, Portugal.

Septotinia populiperda Waterman & Cash (xx) **poplar leaf blotch**

Causes small brown spots on young leaves of *Populus*. The spots increase rapidly in size, turn gray at the center, and have irregular, sharply defined margins. White fungus pustules form along the veins on the lower side of the leaf, and on the upper surface small, white masses of spores develop in concentric circles. Early defoliation may result. Inoculations with wounds succeeded. Distributed in Eastern United States from Maine to Pennsylvania and Maryland; also in Hungary, Latvia, Germany, and Netherlands.

Populus × *canadensis*: Latvia.

P. canadensis var. *marilandica*: Germany.

P. deltoides: Germany, Latvia.

P. × robusta: Germany.

Shiraia bambusicola P. Henn. (xx)

Forms fleshy fungus bodies on culms of *Bambusa*, *Phyllostachys*, and *Sasa*. Known in Japan and China.

Phyllostachys niger var. *henonis*: Japan.

Skierka agallochoa Rac. (xxx)**rust**

Forms telial rust pustules on leaves of *Excoecaria* with spore threads up to 8 mm. long. Known in Java.

Excoecaria agallocha: Java.

Skierka canarii Rac. (xxx)**tree rust**

Forms minute subepidermal, powdery rust pustules, later followed by telial threads forced out of small pores, on the leaves of *Canarium*. Distributed in Java, New Guinea, and Philippines.

Canarium commune: Java.

C. moluccanum: Java.

C. villosum: Philippines.

Skierka congonensis P. Henn. (xxx)**rust**

Forms subepidermal, powdery rust pustules, followed by long, delicate white threads of spores forced from small pores in leaves of *Alchornea*, *Dombeya*, and *Macaranga*. Distributed in the Congo and Sierra Leone.

Alchornea cordifolia: Sierra Leone.

Macaranga sp.: Congo.

Skierka cristata Mains (xxx)**rust**

Forms rust pustules, deep seated in hypertrophies of leaves of *Cupania* with powdery, yellowish spores, and still later, by delicate, long, white telial threads. Distributed in Cuba, Trinidad, and British Honduras.

Cupania americana: Trinidad.

C. belizensis: British Honduras.

C. cubensis: Cuba.

Skierka holwayi Arth. (xxx)**rust**

Forms yellowish rust pustules with loose spore horns on the lower leaf surface and later in long columns on the upper leaf surface. On

leaves of *Thouinidium*. Distributed in Guatemala, Honduras, and El Salvador.

Thouinidium decandrum: El Salvador, Guatemala, Honduras.

Skierka petchii (Syd.) Mains (xxx) rust

Forms rust pustules on reddish-brown spots on leaves of *Sapindus*. Distributed in Ceylon and India.

Sapindus bifoliatus: Ceylon, India.

Skierka philippinensis Mains (xxx) rust

Forms subepidermal, pulverulent rust pustules, later with loose columns on leaves of *Canarium*. Known in the Philippines and New Guinea.

Canarium luzonicum: Philippines.

Sparassis ramosa (Schaeff.) Schroet. (xx) heart rot

A wound parasite with fleshy conk, whitish, very much branched, somewhat resembling a cauliflower with branches flattened at the tips and crowded closely. A single stout stem holds the structure on wounded coniferous trees or roots. Distributed in the United States, Europe, and the Philippines.

Picea sitchensis: Great Britain, Germany.

Pinus strobus: Germany.

P. sylvestris: Germany, Norway, Poland.

Pseudotsuga menziesii: Germany.

Sphaceloma aegiphilae Bitanc. & Jenkins (xxx) scab

Forms scab lesions on *Aegiphila* in Brazil.

Aegiphila sellowiana: Brazil.

Sphaceloma cupaniae Bitanc. & Jenkins (xxx) scab

Forms scab on leaves in Brazil.

Cupania oblongifolia: Brazil.

C. vernalis: Brazil.

Sphaceloma erythrinae Bitanc. & Jenkins (xxx) scab

Develops scab on leaves in Brazil.

Erythrina crista-galli: Brazil.

E. speciosa: Brazil.

Sphaceloma fagariae Bitanc. & Jenkins (xxx) scab

Forms scabby lesions on *Zanthoxylum*. Distributed in Brazil and Argentina.

Zanthoxylum coco: Argentina.

Z. hyemale: Brazil.

Z. riedelianum: Brazil.

Sphaceloma genipae Bitanc. (xxx) scab

Forms dry, rounded, rugose, carrot-red to brown, scabby spots on leaves in Brazil.

Genipa americana: Brazil.

Sphaceloma lagoa-santensis Bitanc. & Jenkins (xxx) **scab**

Forms leaf spots 0.2 to 4 mm. in diameter, nearly black, with yellowish-gray centers and scattered velvety tufts of spores. On *Byrsonima* in Brazil.

Byrsonima coccolobaefolia: Brazil.

Sphaceloma mattirolianum (Sacc. & D. Sacc.) Jenkins (xxx) **scab**

Develops scab lesions on leaves of *Arbutus*. Distributed in Italy and Germany.

Arbutus unedo: Germany, Italy.

Sphaceloma murrayae Jenkins & Grodsinsky (xxx) **willow scab**

Forms small, round, raised spots, grayish white with a narrow dark-brown margin, 0.5 to 2 mm. in diameter on leaves of *Salix*. Blotches on the leaves often follow the main leaf-veins and midrib. Distributed in North America, Argentina, Europe, and New Zealand.

Salix babylonica: New Zealand.

S. fragilis: New Zealand.

S. viminalis: Argentina, Latvia.

Sphaceloma perseae Jenkins (xxx) **avocado scab**

Forms fungus scab of leaves, young shoots and fruits of *Persea*. Distributed in Florida, Mexico, Central America, West Indies, Peru, Brazil, and Union of South Africa.

Persea americana: Brazil, Costa Rica, Cuba, Guatemala, Haiti, Honduras, Jamaica, Mexico, Peru, Puerto Rico, Union of South Africa.

Sphaceloma populi (Sacc.) Jenkins (xxx) **poplar scab**

Forms scabby spots on leaves in Argentina.

Populus nigra var. *italica*: Argentina.

Sphaceloma santali Thirum. (xxx) **sandalwood scab**

Forms cinereous patches on the surfaces of leaves, which appear as brown or black discolorations. Known in Mysore, India.

Santalum album: India (Mysore).

Sphaceloma terminaliae Bitanc. (xxx) **scab**

Associated with scabby lesions on leaves and fruits, blackish to clove-brown or pinkish-buff on *Terminalia*. Known in Brazil and India.

Terminalia bellerica: India (Mysore).

T. catappa: Brazil.

Sphaerophragmium acaciae (Cke.) Magn. (xxx) **rust**

Forms brown rust pustules on leaves. Distributed in the Gold Coast, Mauritius, Madagascar, India, Pakistan, China, Formosa, and the Philippines.

Albizia lebbek: China, Formosa, Gold Coast, India, Madagascar, Mauritius, Pakistan, Philippines.

A. procera: Gold Coast.

Sphaerophragmium dalbergiae Diet. (xxx) **rosewood rust**

Forms rust pustules, early cinnamon brown, later dark brown, on leaves of *Dalbergia* in Cuba, Ceylon, India, Pakistan, and Natal.

Dalbergia amerinum: Cuba.

Sphaerophragmium luzonicum Yates (xxx) **rust**

Forms rust pustules on leaves of *Albizia* in the Philippines.

Albizia acle: Philippines.

A. procera: Philippines.

A. saponaria: Philippines.

Sphaeropsis cryptomeriae Saw. (xx) **blight**

Occurs on blight lesions on seedlings, stocks, cuttings, and older trees of *Cryptomeria*, but apparently only as a wound parasite. Known in Japan.

Cryptomeria japonica: Japan.

Sphaeropsis mori Berl. (xx) **mulberry dieback**

Forms canker lesions on branches of *Morus* resulting in dieback of twigs. Distributed in Italy and Tanganyika.

Morus alba: Tanganyika.

Sphaeropsis necatrix Petri & Adani (xx) **pine-cone blight**

Attacks young cones of *Pinus pinea* in May or June, appearing as chestnut-colored lesions between adjacent cone scales. A day or two later one-third of the cone may turn brown and the whole surface be affected; the seeds become small, wrinkled, and dry. The fungus is favored by wet years and its destructiveness is greater on old trees. The crop of edible nuts is reduced in some years by a valuation of 100 to 150 million lira in the Pisa region of Italy.

Pinus pinea: Italy.

Sphaerostilbe repens Berk. & Br. (xx) **root rot**

Forms black or red flattened fungus strands under the cortex of diseased roots, and the wood is stained blue or purple. Infected plants gradually die. Early fruit-bodies are conidial, short, erect, with red, hairy stalks 2 to 8 mm. high, and pink heads of spores. Later ones are ascogenous consisting of small, dark red perithecia at the base of the conidial stalks. Numerous trees, including *Hevea*, *Aleurites*, *Casuarina*, *Erythrina*, and *Mangifera*, are attacked. Distributed in the British West Indies, Gold Coast, Sierra Leone, Congo, Uganda, Ceylon, India, Indochina, Java, Malaya, New Caledonia, and Fiji.

Aleurites montana: Indochina.

Erythrina sp.: Malaya.

Hevea brasiliensis: Ceylon, Congo, Gold Coast, Java, India, Indochina, Malaya.

Sphaerotheca lanestris Harkness (xxx) **oak powdery mildew**

Forms white to gray powdery mildew on leaves of *Lithocarpus* and *Quercus*. Distributed in the United States, China, Formosa, India, and Japan.

Lithocarpus dealbatus: China.

Quercus delavayi: China.

Q. dentata: Japan.

Q. glandulifera: China, Japan.

Q. glauca: Formosa.

Q. leucotrichophora: India.

Q. mongolica var. *grosseserrata*: Japan.

Sphaerotheca wrightii (Berk. & Curt.) Hoehn. (xxx)

oak powdery mildew

Forms superficial brown perithecia on leaves of *Quercus* in Japan and China.

Quercus glandulifera: Japan.

Q. glauca: China, Japan.

Q. mongolica var. *grosseserrata*: Japan.

Q. myrsinaefolia: Japan.

Sphaerulina taxi (Cke.) Mass. (xxx)

yew leaf blight

Causes discoloration of green needles to brown, followed by protrusion of mouths of perithecia through the leaf epidermis. The disease spreads rapidly over the entire tree, once infection succeeds. Attacks continued 2 or 3 years, usually kill the tree. *Taxus* is the known host. Distributed in Oregon on the European yew, probably imported from Europe; also widespread in Great Britain and Ireland.

Taxus baccata: England, Scotland.

Spumula bottomleyae (Doidge) Thirum. (xxx)

rust

Forms subepidermal, cupulate to cylindric, rust pustules on the lower side of leaves of *Albizia*. Later followed by powdery, brown telia sometimes intermixed with the earlier stage. Known in Rhodesia.

Albizia versicolor: Rhodesia (Victoria Falls).

Spumula quadrifida Mains (xxx)

rust

Forms scattered, cupulate, small, rust pustules, 0.2 to 0.3 mm. in diameter, on the lower side of leaves of *Calliandra*. A later stage, associated with the first, is pulverulent and cinnamon brown. Known in Mexico.

Calliandra bijuga: Mexico.

Stagonospora cryptomeriae Saw. (xx)

needle blight

Forms partly immersed globose conidial pustules on needles of *Cryptomeria* in Japan. A weak wound parasite on young needles.

Cryptomeria japonica: Japan.

Steccherinum septentrionale (Fr.) Banker (xx) **white heart rot**

A wound parasite of hardwood trees, causing a soft, spongy, white rot of the heartwood. Forms large overlapping masses of white crowded conks with pendant, long, crowded, white teeth. Distributed in North America, Europe, and Japan.

Acer sp.: Norway.

A. mono: Japan.

A. platanoides: Russia.

Betula sp.: Russia.

Fagus sylvatica: Norway.

Tilia sp.: Russia.

Ulmus sp.: Norway, Russia.

U. laevis: Russia.

Stemphylium sarciniforme (Cav.) Wiltshire (xxx) **leaf spot**

Forms spots 4 to 10 mm. across, hazel in color, on leaves of *Sophora* in Italy.

Sophora japonica: Italy.

Stereostратum corticioides (Berk. & Br.) Magn. (xxx) **bamboo rust**

Forms yellowish-brown, leathery fungus crusts up to 10 cm. long on stems of *Arundinaria* and *Phyllostachys*. Distributed in Pakistan, Japan, and China.

Phyllostachys bambusoides: Japan, Pakistan.

P. nigra var. *henonis*: China.

Stereum abietinum (Fr.) Fr. (xx) **brown cubical rot**

Forms small conks 2 to 8 cm. long, resupinate or effused-reflexed, brown, hirsute, uneven on top, lower surface light brown to drab. A wound parasite entering wounds or branch stubs. Associated with brown cubical rot of heartwood in conifers. Distributed in mountains and northern regions of North America and Europe.

Abies sp.: Great Britain.

Pinus sp.: Great Britain.

Stereum frustulatum (Fr.) Fckl. (xx) **trunk rot**

Conk woody, resupinate, tuberculose, crowded as if confluent and then broken by shrinkage into frustules 2 to 4 mm. across. On *Quercus* and related trees in wounds, causing a white pocket rot. Distributed widely in North America westward to Oregon and southward into Mexico; also in Europe, India, China, and the Philippines.

Quercus sp.: France, Great Britain.

Stereum gausapatum (Fr.) Fr. (xx) **streaked white rot**

Conk coriaceous, effused-reflexed, shell-like, up to 10 cm. across; upper surface brown to cinnamon buff or clay color, pubescent to hirsute and zonate; hymenium wood brown, pinkish buff to clay color, discoloring to fawn or bone brown when wounded. A wound parasite of *Quercus* and rarely other genera of trees, causing a streaked white rot of heartwood. Distributed widely in Alaska, Canada, and the United States, Mexico, and in Europe, Siberia, and Australia.

Quercus sp.: France, Great Britain.

Q. ilex: Italy.

Stereum hirsutum (Fr.) S. F. Gray (xx) **heart rot**

Conk coriaceous, semicircular, effused-reflexed or resupinate, with margin loosely radiately plicate; upper surface whitish, cinnamon buff or wood brown to grayish, hirsute, zonate; hymenium yellowish, buff, brown, or grayish. A common wound parasite on broadleaf trees and less often on conifers. Causes a white stringy rot. Distributed

in North America southward to Mexico, and in South America, Europe, Siberia, Ethiopia, South Africa, India, Japan, Australia, New Zealand, and Tasmania.

Acacia abyssinica: Eritrea.

Eucalyptus globulus: Union of South Africa.

E. maidenii: Union of South Africa.

Fagus sylvatica: Denmark.

Juniperus procera: Eritrea.

Quercus sp.: France, Germany.

Q. suber: Russia.

Q. suber var. *occidentalis*: Russia.

***Stereum purpureum* (Fr.) Fr. (xx) white mottled rot**

Conk coriaceous, effused-reflexed, up to 6 cm. in diameter, reflexed pilei sometimes overlapping, upper surface buff and tomentose. Hymenium purplish, waxy, pruinulose. On hardwoods mostly, sometimes on conifers. Distribution common in North America south to Mexico. Also in Argentina, Uruguay, Europe, South Africa, Siberia, India, Philippines, Australia, New Zealand, and Tasmania.

Acer platanoides: Norway.

Aesculus × *carnea*: Great Britain.

A. hippocastanum: Great Britain.

Betula sp.: Denmark.

B. pendula: Siberia.

Fagus moesiaca: Yugoslavia.

F. sylvatica: Germany.

Fraxinus sp.: Denmark.

Laburnum sp.: New Zealand.

L. alpinum: Great Britain.

L. anagyroides: Great Britain.

Populus sp.: Denmark, Germany, New Zealand.

P. alba: Union of South Africa.

P. laurifolia: Siberia.

P. nigra var. *italica*: Netherlands.

Salix sp.: Denmark, New Zealand.

Sorbus aucuparia: Norway.

***Stereum sanguinolentum* Fr. (xx) trunk rot**

Conk coriaceous, thin, effused and reflexed; upper surface villose, pinkish buff to pale olive-buff; hymenium glabrous, bleeding where wounded, cracking to the substratum in the resupinate part, drying avellaneous to wood brown. Occurs on conifers causing a brown rot and extensive reddish discoloration of solid wood in early stages of decay. Distribution general in Alaska, Canada, the United States, and Europe; known in Siberia, South Africa, Australia, and New Zealand.

Abies alba: Norway.

A. sibirica: Siberia.

Agathis australis: New Zealand.

Dacrydium cupressinum: New Zealand.

Larix decidua: Great Britain, Norway.

Picea abies: Germany, Great Britain, Norway, Sweden.

Pinus cembra: Norway.

P. sylvestris: Norway.

Stereum sulcatum Burt (xx) **white pocket rot**

Pileus resupinate or with a narrow blackish reflexed portion, coriaceous to leathery. Hymenium with a ruddy tinge when fresh, becoming darker red where bruised in fresh condition. On conifers causing a white pocket rot of the trunks. Distributed in North America in Alaska, Canada, and the United States; also in Europe, Siberia, China, Formosa, and Japan.

Chamaecyparis formosensis: Formosa, Japan.

Stomiopeltis eugeniae Toro (xxx) **orange-brown thread blight**

Forms a loosely interwoven orange-brown fungus tissue over much of the upper surface of leaves of *Eugenia* in Venezuela.

Eugenia punicaefolia: Venezuela.

Taphrina acericola Massal. (xxx) **maple leaf blister**

Forms well-defined small blisters, 2 to 3 mm. in diameter, on leaves of *Acer*. Known in Italy and the Caucasus.

Acer campestre: Italy, Russia (Caucasus).

Taphrina acerina Eliasson (xxx) **maple leaf blister**

Forms yellow-brown, water-soaked, rounded blisters on leaves of *Acer*, between veins, affecting part or all of the leaf. Also causes witches'-brooms. Distributed in Norway, Sweden, and Russia.

Acer platanoides: Norway, Sweden.

Taphrina amentorum (Sadob.) Rostr. (xxx) **alder catkin hypertrophy**

Causes rather large, tongue-like outgrowths of pistillate catkins of *Alnus*. Distributed in Alaska, Norway, Denmark, Germany, Italy, Poland, and Japan.

Alnus sp.: Italy.

A. glutinosa: Denmark, Germany, Norway.

A. hirsuta: Japan.

A. × hybrida: Germany.

A. incana: Denmark, Germany, Norway, Poland.

Taphrina bacteriosperma Johans. (xxx) **birch leaf blister**

Causes leaf yellowing without thickening, often affecting all the leaves of a shoot, but not causing witches'-brooms. Distributed in North America, Norway, Sweden, Greenland, and Russia.

Betula nana: Norway, Sweden.

B. pubescens: Sweden.

Taphrina betulae (Fckl.) Johans. (xxx) **birch leaf spot**

Forms small spots, up to 1 cm. across, pale green to yellow and unthickened, on leaves of *Betula*. Distributed in northern Europe.

Betula × intermedia: Sweden.

B. medwediewii: Russia.

B. pendula: Denmark, Germany, Norway, Russia, Sweden.

B. pubescens: Germany, Norway.

B. turkestanica: Germany.

Taphrina betulicola Nishida (xxx) birch witches'-broom

Causes witches'-brooms on *Betula* in Japan.

Betula ermanii: Japan.

Taphrina betulina Rostr. (xxx) birch witches'-broom

Causes witches'-brooms on *Betula* in Europe.

Betula × *aurata*: Germany.

B. × *intermedia*: Norway, Sweden.

B. nana: Norway.

B. nigra: Denmark.

B. pendula: Denmark, France, Germany, Great Britain, Norway, Sweden.

B. pubescens: Denmark, Germany, Ireland, Norway, Sweden.

B. pubescens var. *carpatica*: Germany.

B. pubescens f. *urticifolia*: Denmark.

Taphrina caerulescens (Desm.) Tul. (xxx) oak leaf blister

Forms slightly swollen blisters on leaves of *Quercus*, sometimes deforming the whole leaf but not forming true witches'-brooms. Distributed in North America, Europe, North Africa, Siberia, and Japan.

Quercus acutissima: Japan.

Q. canariensis: Morocco.

Q. cerris: Algeria, Italy.

Q. coccifera: Algeria, France, Greece, Morocco.

Q. dentata: Japan.

Q. fruticosa: Portugal.

Q. mongolica: Japan, Russia, Siberia.

Q. mongolica var. *grosseserrata*: Japan.

Q. petraea: Italy, Yugoslavia (Montenegro).

Q. pubescens: Austria, Italy.

Q. robur: Denmark, Germany, Ireland, Norway.

Q. variabilis: Japan.

Taphrina carnea Johans. (xxx) birch leaf blister

Causes thickened, yellowish to red blister lesions on leaves of *Betula*. Distributed in eastern Canada, Greenland, and United States; also in northern Europe.

Betula humilis: Poland.

B. × *intermedia*: Norway, Sweden.

B. nana: Norway, Sweden.

B. pendula: Sweden.

B. pubescens: Norway, Sweden.

Taphrina carpini (Rostr.) Johans. (xxx) witches'-broom

Causes yellowing and distortion of leaves and witches'-brooms. Distributed generally in Europe.

Carpinus betulus: Denmark, France, Germany, Great Britain, Italy, Norway, Poland.

C. orientalis: Russia, Sweden.

Taphrina celtis Sadeb. (xxx) **leaf blister**

Causes small, roundish, gray to brown, slightly thickened spots, apparent on the upper surface only, on leaves of *Celtis*. Distributed in France, Algeria, Russia, and Yugoslavia.

Celtis australis: France, Algeria, Russia (Caucasus).

C. tournefortii: Yugoslavia.

Taphrina crataegi Sadeb. (xxx) **hawthorn leaf curl**

Causing leaf curl and deformation of *Crataegus* shoots, but no true witches'-brooms. Distributed in Europe.

Crataegus monogyna: Austria, Denmark, Poland.

C. oxyacantha: Denmark, Germany, Great Britain, Poland.

C. sanguinea: Russia.

Taphrina entomospora Thaxter (xxx) **falsebeech leaf spot**

Causes yellowing without thickening of leaves of *Nothofagus*. All the leaves of a shoot may be attacked. Known at Punta Arenas, Chile.

Nothofagus antarctica var. *bicrenata*: Chile.

N. antarctica var. *uliginosa*: Chile.

Taphrina epiphylla Sadeb. (xxx) **alder witches'-broom**

Forms witches'-brooms, and in midsummer yellowish spots, on unthickened leaves of *Alnus*. Distributed in Europe and Japan.

Alnus hirsuta: Japan.

A. incana: Denmark, Germany, Norway, Poland, Sweden.

Taphrina japonica Kusano (xxx) **alder leaf curl**

Causes leaf curl with thickening of affected parts of leaves of *Alnus*. Known in Alaska, Oregon, and Japan.

Alnus borealis var. *koreana*: Japan.

A. japonica: Japan.

Taphrina johansonii Sadeb. (xxx) **poplar catkin hypertrophy**

Causes golden-yellow enlargements of carpels of *Populus* catkins. Distributed in eastern North America, Europe, and Japan.

Populus sp.: Great Britain.

P. ×canescens: Russia.

P. sieboldii: Japan.

P. tremula: Denmark, Finland, Norway.

P. tremula f. *pendula*: Sweden.

Taphrina kruchii (Vuill.) Sacc. (xxx) **oak witches'-broom**

Causes formation of witches'-brooms with negatively geotropic curvature of twigs on *Quercus*. Distributed in the Mediterranean basin: Algeria, Corsica, Sicily, Italy, and Sardinia.

Quercus ilex: Algeria, Corsica, Italy, Sardinia, Sicily.

Taphrina kusanoi Ikeno (xxx) **leaf blister**

Causes small blister spots, up to 1 cm. in diameter, on leaves of *Castanopsis* in Japan.

Castanopsis cuspidata: Japan.

Taphrina nana Johans. (xxx) **birch leaf yellowing**

Causes yellowing of leaves without thickening or formation of definite brooms on *Betula*. Distributed in Norway, Sweden, Germany, Poland, Russia, and Kamchatka.

Betula nana: Norway, Sweden.

B. pendula: Germany, Poland, Sweden.

B. pubescens: Sweden.

Taphrina nikkoensis Kusano (xxx) **maple leaf spot**

Causes grayish scurfs on pale-red or violet spots on leaves of *Acer* in Japan.

Acer diabolicum f. *purpurascens*: Japan.

Taphrina ostryae Massal. (xxx) **leaf spot**

Causes small, brown, unthickened spots on leaves of *Ostrya* in Italy.

Ostrya carpinifolia: Italy.

Taphrina piri Kusano (xxx) **leaf blister**

Causes small, pale, bullate spots or larger curled areas on leaves of *Sorbus* in Japan.

Sorbus alnifolia: Japan.

Taphrina polyspora (Sorok.) Johans. (xxx) **maple leaf spot**

Causes small, reddish-brown to black patches on leaves of *Acer* in Europe.

Acer orientale: Greece.

A. tataricum: Germany, Russia, Sweden.

Taphrina populina Fr. (xxx) **poplar leaf blister**

Causes golden-yellow blisterlike spots, small, but sometimes confluent and large, involving half or more of the leaf blade, on *Populus*. Distributed locally throughout eastern North America, occasionally in western North America. Widely distributed in Europe and known in India, China, and Japan.

Populus angulata: Germany.

P. balsamifera: Norway.

P. ×berolinensis: Norway.

P. ciliata: India.

P. ×generosa: Denmark, Great Britain, Norway.

P. laurifolia: Denmark, Great Britain.

P. nigra: Denmark, Austria, Great Britain, Italy, Poland, Sweden.

P. nigra var. *italica*: Germany.

P. ×rasumowskiana: Germany.

Taphrina rhizophora Johans. (xxx) **poplar carpel hypertrophy**

Causes golden-yellow hypertrophy of carpels in catkins of *Populus*. Distributed in Sweden, Poland, Great Britain, Algeria, and Japan.

Populus alba: Algeria, Poland, Sweden.

P. tremula: Japan.

Taphrina sadebeckii Johans. (xxx) **alder leaf spot**

Causes yellow spots up to 1 cm. in diameter on *Alnus* leaves in Europe and Japan.

Alnus glutinosa: Denmark, Germany, Ireland, Norway, Poland, Sweden, Russia.

A. glutinosa f. *laciniata*: Denmark.

A. hirsuta: Germany, Japan.

Taphrina splendens Palm (xxx) **birch leaf discoloration**

Causes affected leaves of *Betula* to become abnormally deep green color above and rusty tan beneath, not thickened and not forming witches'-brooms. Distributed in Swedish Lapland and northern Norway.

Betula pubescens: Norway, Sweden.

Taphrina tosquinetii (Westend.) Tul. (xxx) **alder leaf curl**

Causes leaf curl on *Alnus*. Distributed in a single locality in New Hampshire and widely in Europe.

Alnus glutinosa: Belgium, Corsica, Denmark, France, Germany, Great Britain, Ireland, Norway, Sweden.

A. × hybrida: Germany.

A. incana: Great Britain, Denmark.

Taphrina ulmi (Fckl.) Johans. (xxx) **elm leaf blister**

Causing small yellowish to brown, slightly puffed spots on leaves of *Ulmus*. Distributed widely in eastern North America and Europe.

Ulmus carpiniifolia: Denmark.

U. glabra: Denmark, England, Poland, Sweden.

U. laevis: Germany, Netherlands.

Tetramyxa rhizophage Lihnell (xxx) **juniper root infection**

Parasitizes the cells of tissues of living roots of *Juniperus*. Infected cells are not abnormally swollen. Possibly this is a case of parasitism beneficial to the host, or at least not perceptibly injurious. Known in Sweden.

Juniperus communis: Sweden.

Thelephora terrestris Fr. (x) **smothering fungus**

Pileus 3 to 5 cm., ferruginous to dark fuscous, semicircular, sessile, or effused-reflexed, often overlapping, fibrous, scaly, margin fimbriate, lacinate, hymenium fuscous or pale fawn, inferior, papillate. Common on sandy soil at base of young seedlings and enveloping entire small plants. Distributed in North America, including Jamaica; also in Europe and South Africa.

Picea sp.: Germany.

Pinus sp.: Germany.

P. mugo var. *rostrata*: Norway.

Thyridaria tarda Bancroft (xx) **dieback**

Causes dying back of young shoots, which may reach the trunk and roots, finally killing the tree. Dieback attacks numerous broad-leaved trees of tropical regions. Several imperfect fungi cause much loss

to forest stands and are supposed to be conidial forms of *Thyridaria tarda*. This wound parasite is widely distributed in tropical countries of the world.

Albizia moluccana: Madagascar.

Theobroma cacao: Madagascar, Philippines, West Indies.

Thyrococcum sirakoffii Bub. (xx) **mulberry dieback**

Associated with dieback of twigs and cankers of trunks and branches of *Morus* in central Europe.

Morus sp.: Bulgaria.

Thyronectria austro-americana (Speg.) Seeler (x) **wilt**

Causes sudden wilting of all the leaves in spring, or yellowing and shedding of leaflets to total defoliation in later attacks on *Gleditsia japonica*. Other symptoms are excessive flower production and fruit setting, reddish-orange discolorations in the sapwood, and slender hyaline mycelial strands and minute unicellular conidia in the vessels of the current annual ring. Trees are killed in one season.

On *Gleditsia triacanthos* the disease is slower. Sunken cankers form and girdle branches, causing gradual defoliation and death. Yellowish-brown spore pustules form on the dead bark, and the spores are expelled forcibly 2 mm. into the air. Inoculations succeed.

Distributed in Eastern United States and Argentina. It might be destructive in Japan or China if introduced there.

Gleditsia triacanthos: Argentina.

Titaeosporina tremulae (Lib.) van Luijk (xxx) **aspen anthracnose**

Conidial pustules are borne on cinereous *Populus* leaf spots with fuscous border lines. Distributed generally in Europe.

Populus tremula: Denmark, Great Britain, Norway.

Tomentella bambusina Viégas (xx) **bamboo wilt**

Forms white to ashen, flat, fruiting surface on wilted bracts and culms of shrivelled plants of *Bambusa*. Inoculations in wounds succeeded. Known in Brazil.

Bambusa vulgaris: Brazil.

Trachysphaera fructigena Tabor & Bunting (xxx) **mealy pod**

Attacks young fruits of coffee, avocado, and cacao. Diseased parts die, shrivel up, become hard, a dark purple-brown discoloration appears and is later covered by a whitish or pinkish-brown mealy incrustation. Known in the Gold Coast and Congo regions.

Coffea liberica: Gold Coast.

Persea americana: Gold Coast.

Theobroma cacao: Belgian Congo, Gold Coast.

Trametes corrugata (Pers.) Bres. (xx) **trunk rot**

Conk conchate, overlapping, 5 to 15 cm. wide, surface glabrous, rugose, dark reddish-brown with a white marginal band 3 to 12 mm. wide, margin fertile, pores 2 to 4 per mm., white with reddish colored mouths. A wound parasite on broad-leaved trees. Distributed in

Central and South America, Gold Coast, Seychelles, India, Guam, Java, and Philippines.

Hevea brasiliensis: Brazil, Java.

Trametes cubensis (Mont.) Sacc. (xx) **brown trunk rot**

Pileus semicircular, sessile, corky, rigid, glabrous, concentrically sulcate, margin obtuse, pores rounded, walls thick. On wounded trunks of broad-leaved trees causing a brown carbonaceous rot. Distributed in Florida, Cuba, Honduras, Brazil, Peru, Siberia, and India.

Eucalyptus citirotodora: India.

Shorea robusta: India.

Trametes dickinsii Berk. (xx) **brown trunk rot**

Conk sessile, applanate, corky-woody, pale brown, strigose, hymenium concolorous, pores round, equal, 0.5 mm. across, walls thick and obtuse. Causing brown cubical rot on wounded Fagaceous trees in Japan.

Castanea sp.: Japan.

Fagus sp.: Japan.

Lithocarpus sp.: Japan.

Quercus sp.: Japan.

Trametes gibbosa Fr. (xx) **trunk rot**

Pileus 10 to 20 cm. wide, whitish turning grayish, dimidiate, flattened, villous, margin obtuse, often brownish. Pores whitish, 2 to 8 mm. long, equal, flesh whitish, corky, compact, thick, very firm. A wound parasite on broad-leaved trees causing a white spongy rot. Distributed in Europe, Philippines and Asia.

Betula davurica: Siberia (Ussuri).

B. pendula: Siberia.

Trametes heteromorpha (Fr.) Bres. (xx) **rot**

A white to yellowish, effused-reflexed, multiple, corky conk 2 to 6 cm., rugose, and almost glabrous. Mostly on conifers. Causes a brown rot. A wound pathogen especially in trees broken by snow. Distributed in North America northward from Nova Scotia to Alaska. British Columbia, Alberta, and Yukon Territory; also in Europe and Siberia.

Picea abies: Sweden.

Trametes hispida Bagl. (xx) **white trunk rot**

Conk sessile, drying rigid, 2.5 to 12 cm. wide, with dense yellowish-brown strigose pubescence; pore surface grayish brown to blackish, the tubes 3 to 10 mm. long, the mouths angular, thick walled, 1 to 2 per mm. On wounded hardwood trees, rarely on conifers, causing a stringy white rot. Distributed generally in North America from Alaska to Nova Scotia and to Mexico; also in Europe and Siberia.

Fagus sylvatica: England.

Trametes incerta (Currey) Cke. (xx) **heart rot**

Causing heart rot of broad-leaved trees in India, entering through fire scars and other injuries extending through the bark to the wood.

Boswellia serrata: India.

Shorea robusta: India.

Trametes mollis (Sommerf.) Fr. (xx) **white fibrous rot**

Pileus effused-reflexed or resupinate, firm and rigid when dry, 1 to 6 cm. wide, umber to tobacco-brown, velvety, tomentose, zonate; pore surface gray to brownish, tubes 2 to 3 mm. long, the mouths angular and sinuous, 1 to 3 per mm. Occurs on numerous broad-leaved trees. Reported on conifers in a few instances. It is correlated with a white rot. Distributed widely in North America southward into Mexico; also in Europe, Siberia, Kamchatka, India, and the Philippines.

Quercus semicarpifolia: India.

Trametes obstinatus Cke. (xx)

Pileus hard, coriaceous-woody, pale, cinereous, margin acute, entire. Pores elongate-round, 0.5 mm. in diameter, toothed. On broad-leaved trees. Known in Australia and South Africa.

Acacia decurrens var. *mollis*: Union of South Africa.

Celtis kraussiana: Union of South Africa.

Trametes ochroleuca Berk. (xx) **white spongy rot**

Pileus corky, yellowish-white, thinly tomentose then glabrous, margin obtuse, sterile; pores dotlike, small. On broad-leaved trees causing a spongy white rot. Distributed in Australia, Tasmania, and Malacca peninsula.

Banksia integrifolia: Australia (Victoria).

Trametes suaveolens (Fr.) Fr. (xx) **white mottled rot**

Pileus sessile, soft-corky, 5 to 16 cm. wide, white, drying yellowish, tomentose to glabrous, azonate, anise-scented when fresh. Pore surface white then dark colored, tubes 0.3 to 1.5 cm. long, the mouths circular, thick walled, entire, 1 to 3 per mm. Commonly on *Salix*, but also on numerous other genera of hardwoods. It causes a white mottled rot of the heartwood. Distributed in British Columbia, Canada, and in the United States in Idaho and Montana; also in Europe and Siberia.

Salix alba: Denmark.

S. caprea: Norway.

S. cinerea: Denmark.

S. pentandra: Denmark.

Trametes subflava Lloyd (xx) **hackberry trunk rot**

Pileus unicolorous, maize yellow, with pore mouths darker, sessile, ungulate. Pores very minute. On *Celtis* in South Africa.

Celtis kraussiana: Union of South Africa.

Trametes trogii Berk. (xx) **trunk rot**

Conk sessile, effused-reflexed or resupinate, tough to firm and rigid, up to 12 cm. wide, with a dense brownish pubescence, never turning black, margin thin and acute; pore surface whitish to a lavender tint; the tubes 3 to 7 mm. long, the mouths rounded to angular, rather thick walled, 3 per mm. On hardwood and coniferous living trees in wounds, causing a white rot. Distributed in North America, Argentina, Europe, and Siberia.

Cupressus sempervirens: Argentina.

Enterolobium contortisiliquum: Argentina.

Fraxinus sp.: Portugal.
Populus sp.: Portugal.
P. alba: Argentina.
P. tremula: Argentina.
Quercus sp.: Portugal.
Schinus dependens: France.

Trichoscyphella resinaria (Cke. & Phill.) Dennis (xx) **conifer canker**

Forms tiny fungus bodies on swollen bark and exuded resin of conifers, bowl-shaped with short stems, pale yellow inside and about 1 mm. wide. Distributed in northern North America, and in Great Britain, Norway, and Hungary.

Larix decidua: Great Britain.
L. sibirica: Great Britain.
Picea abies: Great Britain, Norway.
Pinus griffithii: Great Britain.
P. nigra: Norway.
P. sylvestris: Norway.

Trichoscyphella willkommii (Hartig) Nannf. (xxx) **larch canker**

Forms short-stalked cupules with whitish rims covered outside by fungus hairs, orange-colored within, 3 to 5 mm. in diameter when dry. In wet weather the cups expand to a shallow saucer shape. They are seated on bark recently killed by the fungus. Depressed cankers are formed and commonly do not heal over but may girdle small twigs and kill the distal end. This fungus attacks the species of *Larix* and *Pseudolarix*. Distributed in eastern Massachusetts where all known diseased trees have been destroyed. Otherwise it appears to be limited to Europe.

Opperman warns that in Denmark, the American *Larix occidentalis* is so susceptible it should not be planted in that country. This may indicate special danger to this species in its native range if the parasite ever reaches it.

Larix decidua: Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain (England, Scotland, Wales), Ireland, Italy, Latvia, Netherlands, Norway, Poland, Russia (Baltic Provinces), Sweden, Switzerland, Yugoslavia.
L. xeurolepis: Scotland.
L. gmelinii var. *japonica*: Norway.
L. leptolepis: Denmark, Germany, Great Britain, Ireland, Norway, Poland, Sweden.
L. occidentalis: Ireland.
L. sibirica: Norway, Denmark, Great Britain, Sweden.

Trichosporium vesiculosum Butler (xx) **root rot**

Forms pulverulent brown pustules on diseased bark, heaped with abundant conidia. Causes a root disease of *Casuarina*: also a canker of bark, fruiting under the bark, rupturing it, and killing the tree. Inoculations with wounds succeeded. Distributed in India and Mauritius.

Casuarina equisetifolia: India, Mauritius.
C. muricata: India.

Triphragmium cedrelae Hori (xxx) **rust**

Forms yellow to black powdery rust pustules on upper and lower surfaces of leaves of *Toona* in Japan.

Toona sinensis: Japan.

Triphragmium chinense Tai & Cheo (xxx) **rust**

Forms rust pustules on leaves of *Koelreuteria* in Japan and China.

Koelreuteria paniculata: China.

Triphragmium koelreuteriae H. & P. Syd. (xxx) **rust**

Forms rust pustules on *Koelreuteria* in Japan and China.

Koelreuteria bipinnata: China:

K. paniculata: China, Japan (Morioka).

Tripospora tripos (Cke.) Lindau (xxx) **black spot**

Parasitic on leaves and green twigs of *Podocarpus*. Known in South Africa.

Podocarpus elongatus: Union of South Africa.

P. latifolius: Union of South Africa.

Uleiella paradoxa Schroet. (xxx) _____

Forms yellowish to chestnut-brown fungus pustules on leaves of *Araucaria* in Brazil.

Araucaria araucana: Brazil.

Uleomyces decipiens Syd. (xx) _____

Forms fungus stromata on indefinite pallid spots 0.5 to 2 mm. in diameter, blackish red on leaves of *Quercus* and *Lithocarpus* in Japan and Formosa.

Lithocarpus uraiianus: Formosa.

Quercus thalassica: Japan (Tosa).

Uncinula aceris (DC.) Sacc. (xxx) **maple powdery mildew**

Forms a white to gray powdery conidial fungus coating on leaves of *Acer*. In late summer or autumn tiny, round, blackish perithecia appear scattered over the whitish coating. Distributed in Europe, Algeria, China, and Japan.

Acer campestre: Norway.

A. catalpifolium: China.

A. caudatum var. *multiserratum*: Japan.

A. mono: Japan.

A. negundo: Japan.

A. palmatum: Japan.

A. platanoides: Norway, Russia (Kazan).

A. pseudoplatanus: Norway, Scotland (Peebles).

Uncinula adunca (Wallr. ex Fr.) Lév. (xxx) **powdery mildew**

Forms white to gray powdery mildew coating on leaves of *Populus* and *Salix*. Distributed in the United States, Europe, and Siberia.

Populus × *canadensis*: Italy.

P. nigra: Denmark, Italy.

P. nigra var. *italica*: Denmark, Italy.

P. tremula: Norway, Italy.

Salix alba: Siberia.

S. amygdalina: Denmark.

S. caprea: Denmark.

S. pyrolaeifolia: Siberia.

S. repens: Denmark.

S. rubens: Denmark.

Uncinula clandestina (Biv.-Bern.) Schroet. (xxx)

elm powdery mildew

Forms powdery mildew on leaves of *Ulmus* in Japan and Europe.

Ulmus japonica: Japan.

U. parvifolia: Japan.

U. procera: Japan.

Uncinula clintonii Pk. (xxx)

powdery mildew

Forms white to gray powdery mildew on leaves of *Celtis*, *Zelkova*, and related trees. Distributed in North America, China, Formosa, and Japan.

Aphananthe aspera: Japan.

Celtis biondii: China.

C. sinensis: China, Formosa, Japan.

C. sinensis var. *japonica*: Japan.

Firmiana platanifolia: China.

Paulownia tomentosa: China.

Zelkova serrata: Japan.

Uncinula curvispora K. Hara (xxx)

beech powdery mildew

Develops a powdery mildew coating on leaves of *Fagus* in Japan.

Fagus crenata: Japan.

Uncinula delavayi Pat. (xxx)

powdery mildew

Forms powdery mildew on leaves of *Toona* in Japan and China.

Toona sinensis: China, Japan.

Uncinula fraxini Miyabe (xxx)

ash powdery mildew

Forms powdery mildew coatings on leaves of *Fraxinus* in China and Japan.

Fraxinus chinensis: China.

F. longicuspis: Japan.

Lindera sp.: China.

Uncinula magellanica Thaxt. (xxx) falsebeech powdery mildew

Forms a powdery mildew on leaves of *Nothofagus* in Chile.

Nothofagus antarctica var. *bicrenata*: Chile.

Uncinula miyabei (Salm.) Sacc. & Syd. (xxx) powdery mildew

Develops powdery mildew on leaves of *Alnus* and *Cudrania* in China and Japan.

Alnus hirsuta: Japan.

A. incana: Japan.

A. japonica: Japan.

A. maritima: Japan.

Cudrania tricuspidata: China.

Uncinula mori Miyake (xxx) **mulberry powdery mildew**

Forms a powdery mildew coating on the lower surface of leaves of *Morus*. Distributed in Japan, China, and Russia.

Morus alba: Japan, Russia (Tashkent).

Uncinula nothofagi Thaxt. (xxx) **falsebeech powdery mildew**

Forms powdery mildew coating on leaves of *Nothofagus* in Chile.

Nothofagus antarctica var. *bicrenata*: Chile.

Uncinula polychaeta (Berk. & Curt.) Ell. (xxx) **powdery mildew**

Forms white to gray powdery mildew coating, with tiny globular perithecia scattered over it on leaves of *Celtis* and *Aphananthe*. Distributed in the United States, Argentina, Uruguay, China, Formosa, Japan, and India.

Aphananthe aspera: Japan.

Celtis australis: India.

C. boliviensis: Argentina.

C. sinensis: China, Formosa, Japan.

C. tala: Uruguay.

Uncinula prosopidis Speg. (xxx) **mesquite powdery mildew**

Forms powdery mildew coating on leaves of *Prosopis* in Argentina.

Prosopis campestris: Argentina (Buenos Aires).

Uncinula salicis (DC.) Wint. (xxx) **powdery mildew**

Forms powdery mildew coating on leaves of *Populus* and *Salix*. Distributed in North America, Europe, China, India, and Japan.

Populus × canadensis: Italy.

P. ciliata: India.

P. nigra: France, Italy, Russia.

P. nigra var. *italica*: Italy.

P. sieboldii: Japan.

P. simonii: China.

P. suaveolens: Japan.

P. tremula: Italy, Japan, Norway.

Salix babylonica: China.

S. bakko: Japan.

S. caprea: Japan, Norway, Russia.

S. cinerea var. *latifolia*: Russia.

S. daphnoides: Japan.

S. gracilistyla: Japan.

S. integra: Japan.

S. × multinervis: Japan.

S. phanera: China.

S. purpurea: Japan.

S. × smithiana: Norway.

S. stipularis: Japan.

S. urbaniana: Japan.

S. viminalis: Japan.

S. vulpina: Japan.

S. wallichiana: China.

Uncinula salmoni Syd. (xxx) ash powdery mildew

Develops powdery mildew coating on leaves in Japan.

Fraxinus longicuspis: Japan.

F. longicuspis var. *sieboldiana*: Japan.

Uncinula septata Salm. (xxx) oak powdery mildew

Forms a powdery mildew coating on leaves of *Quercus* in Japan and China.

Quercus fabri: China.

Q. glandulifera: Japan.

Uncinula sinensis Tai & Wei (xxx) powdery mildew

Develops a powdery mildew on leaves of *Sophora* and *Toxicodendron* in China.

Sophora japonica: China.

Uncinula tectonae Salm. (xxx) powdery mildew

Forms a powdery mildew coating on leaves of *Tectona* and *Cordia* in India.

Cordia macleodii: India.

Tectona grandis: India.

Uncinula tulasnei Fckl. (xxx) maple powdery mildew

Forms a powdery white mildew coating on leaves of *Acer*. Distributed in northern Europe and Japan.

Acer mono: Japan.

A. palmatum: Japan.

A. platanoides: Denmark, Germany, Norway.

Uredinopsis adianti Komarov (xxx) fir-fern rust

See remarks under *Hyalopsora* for general life history. Needle rust on *Abies* with its alternate phase on *Adiantum*. Distributed in Japan and Manchuria.

Abies sachalinensis: Japan.

Uredinopsis athyrii Kamei (xxx) fir rust

See remarks under *Hyalopsora* for general life history. Needle rust of *Abies*. Distributed in Japan.

Abies sachalinensis: Japan.

Uredinopsis filicina (Niessl) Magnus (xxx) fir rust

See *Hyalopsora* for general life history. Forms needle rust on *Abies*. Distributed in Europe, Siberia, and Japan.

Abies sachalinensis: Japan.

Uredinopsis hirosakiensis Kamei & Hiratsuka (xxx) fir-fern rust

For general life history see *Hyalopsora*. Causes needle rust on *Abies* with an alternate stage on *Dryopteris*. Distributed in Japan and on the Siberian Coast.

Abies sachalinensis: Japan.

Uredinopsis intermedia Kamei (xxx) **fir rust**

For general life history see *Hyalopsora*. Forms rust on needles of *Abies*. Distributed in Vladivostok and Japan.

Abies sachalinensis: Japan.

Uredinopsis kameiana Faull (xxx) **fir rust**

See under *Hyalopsora* for general life history. Needle rust of *Abies*. Distributed in Siberia, China, and Japan.

Abies sachalinensis: Japan.

Uredinopsis ossaeiformis Kamei (xxx) **fir rust**

See under *Hyalopsora* for general life history. Needle rust on *Abies*. Distributed in Siberia and Japan.

Abies firma: Japan.

A. sachalinensis: Japan.

Uredinopsis struthiopteridis Störmer ex Diet. (xxx) **fir-fern rust**

For general life history see *Hyalopsora*. Needle rust on *Abies* and alternate stage on *Struthiopteris* and other ferns. Distributed in Canada, United States, Europe, Caucasus, Siberia, and Japan.

Abies sachalinensis: Japan.

Uredinopsis woodsiae Kamei (xxx) **fir rust**

For general life history see *Hyalopsora*. Needle rust on *Abies*. Distributed in Japan.

Abies sachalinensis: Japan.

Uredo acaciae-bursariae Cum. (xxx) **acacia rust**

Forms powdery, cinnamon-brown pustules on leaves of *Acacia* in Guatemala.

Acacia bursaria: Guatemala.

Uredo albizziae P. Henn. (xxx) **rust**

Forms solid rust pustules, ochraceous-orange, with spores not powdery, yellow to brown, on leaves of *Albizia* in New Guinea.

Albizia procera: New Guinea (Finschhafen).

Uredo alchorneae P. Henn. (xxx) **rust**

Forms powdery rust pustules on deformed fruit stems of *Alchornea*; spores yellowish brown to fuscous. Known in Brazil and Venezuela.

Alchornea iricurana: Brazil.

A. triplinervia: Venezuela.

Uredo amicosae Arth. (xxx) **rust**

Forms uredial spore pustules on leaves of *Chrysophyllum*. The spores are yellowish brown. Known in Puerto Rico.

Chrysophyllum cainito: Puerto Rico (Mayaguez).

Uredo artocarpi Berk & Br. (xxx) rust

Forms numerous dull brown rust pustules on the lower surfaces of leaves of *Artocarpus* and *Castilla*. Distributed in the West Indies, South America, Ceylon, Malaya, and Philippines.

Artocarpus altilis: Colombia, Cuba, Dominican Republic, Philippines, Puerto Rico, Venezuela.

A. heterophyllus: Venezuela.

Castilla elastica: Cuba.

Uredo bixae Arth. (xxx) rust

Forms powdery, brown, rust pustules on leaves of *Bixa* in Puerto Rico and Dominican Republic.

Bixa orellana: Dominican Republic, Puerto Rico.

Uredo bombacis Petch (xxx) rust

Forms rust pustules, minute to 200 μ in diameter, golden yellow with golden spores, on leaves of *Bombax* in Ceylon.

Bombax malabaricum: Ceylon.

Uredo castaneae P. Henn. (xxx) rust

Forms brown, rust pustules on leaves of *Castanea* and *Quercus*. Known in the Philippines and Formosa.

Castanea mollissima: Philippines.

Quercus glandulifera: Formosa.

Uredo celtidis Paz. (xxx) rust

Forms brown, powdery, rust pustules on the lower side of leaves of *Celtis* in Peru and Brazil.

Celtis sp.: Peru.

Uredo chlorophorae Cumm. (xxx) rust

Forms uredia on the lower side of leaves, 100 to 170 μ in diameter, golden brown with yellow to white spores. On *Chlorophora* in Sierra Leone.

Chlorophora regia: Sierra Leone.

Uredo clusiae Arth. (xxx) rust

Forms dark brown, rust pustules with light yellow spores on leaves of *Clusia* in Puerto Rico.

Clusia rosea: Puerto Rico.

Uredo colebrookiae Barcl. (xxx) rust

Forms rust pustules on leaves of *Colebrookia* in India and China.

Colebrookia oppositifolia: China, India.

Uredo colubrinae Cumm. (xxx) rust

Forms rust pustules on leaves of *Colubrina* in Guatemala.

Colubrina arborescens: Guatemala.

Uredo cordiarum Kern & Whet. (xxx) rust

Forms powdery rust pustules, 0.5 to 0.8 mm. across, with cinnamon-brown spores on leaves of *Cordia* in Colombia.

Cordia cylindrostachya: Colombia.

Uredo dendrocalami Petch (xxx) **bamboo rust**

Forms rust pustules on leaves of *Dendrocalamus* in Ceylon and China.

Dendrocalamus latiflorus: China.

Uredo ehretiae Barcl. (xxx) **rust**

Develops golden-yellow, rust pustules 1 to 8 mm. across, on leaves and petioles of *Ehretia*. Distributed in Japan, Formosa, Pakistan, India, and China.

Ehretia acuminata: Formosa, India, Pakistan.

E. macrophylla: China, Formosa.

E. serrata: India.

Uredo erythrinae P. Henn. (xxx) **rust**

Develops rust pustules on yellow-brown spots on leaves of *Erythrina*. Distributed in Guatemala, Venezuela, Congo, Uganda, Pakistan, India, Ceylon, Malaya, and Philippines.

Erythrina berteroaana: Guatemala.

E. glauca: Venezuela.

E. variegata: Philippines.

Uredo farinosa P. Henn. (xxx) **rust**

Makes white, mealy spots with pale yellowish spores on leaves and twigs of *Ocotea* and related species. Known in Brazil and Puerto Rico.

Ocotea leucoxydon: Puerto Rico.

Uredo ficina Juel (xxx) **rust**

Forms minute powdery rust pustules with pale brown spores on leaves of *Ficus*. Distributed in Florida, Guatemala, Barbados, Venezuela, and Paraguay.

Ficus aurea: Guatemala.

F. involuta: Guatemala.

F. padifolia: Guatemala.

Uredo hameliae Arth. (xxx) **rust**

Forms numerous light-brown rust pustules with golden-yellow spores, on leaves of *Hamelia*. Distributed in Puerto Rico, Dominican Republic, Costa Rica, and Venezuela.

Hamelia patens: Costa Rica, Dominican Republic, Puerto Rico, Venezuela.

Uredo hymenaeae Mayor (xxx) **rust**

Forms light-brown powdery rust pustules over the entire leaf surface of trees of *Hymenaea*. Distributed in Puerto Rico, Cuba, and Venezuela.

Hymenaea courbaril: Cuba, Venezuela.

Uredo ignava Arth. (xxx) **bamboo rust**

Forms brown powdery rust pustules on leaves of *Bambusa* and *Dendrocalamus*. Distributed in Cuba, Puerto Rico, Venezuela, and China.

Bambusa arundinacea: China.

B. vulgaris: Cuba, Puerto Rico, Venezuela.

Dendrocalamus sp.: China.

Uredo ingae P. Henn. (xxx) **rust**

Forms powdery, ochraceous rust pustules on stems and fruit petioles, with light yellowish spores on *Inga*. Distributed in the West Indies, Guatemala, El Salvador, Costa Rica, Venezuela, Colombia, and Brazil.

Inga coriacea var. *leptopus*: Costa Rica.

I. edulis: Brazil, Guatemala.

I. fastuosa: Venezuela.

I. preussii: El Salvador.

I. vera: Puerto Rico.

Uredo longipedis P. Henn. (xxx) **rust**

Forms blistery, ochraceous rust pustules with yellow-brown spores on leaves of *Calliandra* in Brazil.

Calliandra longipes: Brazil.

Uredo machaerii Diet. (xxx) **rust**

Forms cinnamon rust pustules with pale brown spores on much-deformed branches of *Machaerium* in Brazil.

Machaerium sp.: Brazil.

Uredo maclurae Speg. (xxx) **rust**

Forms minute, 200 to 300 μ in diameter, pale yellow rust pustules with yellow spores on leaves of *Maclura* and *Chlorophora*. Known in Argentina and Venezuela.

Chlorophora tinctoria: Venezuela.

Maclura pomifera: Argentina.

M. ucora: Argentina.

Uredo manilensis Syd. (xxx) **rust**

Forms brown rust pustules on leaves of *Tabernaemontana* in the Philippines.

Tabernaemontana divaricata: Philippines.

T. polygama: Philippines.

Uredo ngamboensis P. Henn. (xxx) **rust**

Forms rust pustules on leaves of *Albizia*. Known in Mauritius and the Philippines.

Albizia lebbek: Mauritius, Philippines.

Uredo prosopidicola Speg. (xxx) **mesquite rust**

Causes hypertrophy of seed pods with fleshy tumors up to the size of hen's eggs, with brown subpulverulent rust pustules and pale fulvous spores. On young seed pods of *Prosopis* in Argentina.

Prosopis campestris: Argentina (Catamarca).

Uredo pusilla Kern, Thurston & Whet. (xxx) rust

Forms rust pustules, small, up to 0.3 mm. across, with pale cinnamon-brown spores on *Machaerium* in Venezuela.

Machaerium humboldtianum: Venezuela.

Uredo quercus Brond. (xxx) oak rust

Forms small, yellow to orange, rust pustules on the lower surface of leaves of *Quercus* spp. Distributed in Europe and Morocco.

Quercus sp.: Belgium, France, Germany, Great Britain, Italy, Switzerland.

Q. ilex: Great Britain.

Q. robur: Great Britain.

Q. suber: Morocco.

Uredo raciborskii Sacc. & Syd. (xxx) rust

Forms brown rust pustules on leaves of *Pithecellobium* in Java.

Pithecellobium scutiferum: Java.

Uredo rhombica Speg. (xxx) rust

Forms rust pustules on leaves of *Astronium*. Distributed in Venezuela, Paraguay, and Brazil.

Astronium graveolens: Venezuela.

Uredo rondeletiae Arth. & Holw. (xxx) rust

Forms small, 0.1 to 0.4 mm. across, pulverulent, cinnamon-brown rust pustules with cinnamon-brown spores, on the lower surface of leaves of *Rondeletia* in Guatemala.

Rondeletia cordata: Guatemala.

Uredo salicis-acmophyllae G. Fragoso (xxx) willow rust

Forms small, golden-yellow rust pustules on leaves of *Salix* in Iran.

Salix acmophylla: Iran.

Uredo sissoo Syd. & Butl. (xxx) rust

Forms yellowish, powdery rust pustules on leaves of *Dalbergia*. Distributed in India, Ceylon, and Pakistan.

Dalbergia sissoo: India, Pakistan.

Uredo spyridii Cke. & Mass. (xxx) rust

Forms ochraceous to snuff-brown, pulverulent rust pustules with yellow to orange-yellow spores on leaves of *Spyridium* and *Pomaderris*. Distributed in Victoria, Australia, and in Tasmania.

Pomaderris apetala: Australia, Tasmania.

Uredo stereospermi Syd. (xxx) rust

Forms dark brown rust pustules with reddish-brown spores on leaves of *Stereospermum* in Ceylon.

Stereospermum chelonoides: Ceylon.

Uredo tectonae Racib. (xxx) teak rust

Forms brown rust pustules on leaves of *Tectona*. Distributed in Java, Indochina, Ceylon, India, Pakistan, and Formosa.

Tectona grandis: Formosa, India, Java, Pakistan.

Uredo terminaliae P. Henn. (xxx) rust

Forms ochraceous rust pustules on leaves of *Terminalia* in Brazil.
Terminalia hyllobates: Brazil.

Uredo tholopsora Cumm. (xxx) poplar rust

Forms golden-yellow, powdery, minute rust pustules on leaves of *Populus* in China.

Populus nigra: China.

P. tomentosa: China.

Uredo trichiliae Arth. (xxx) rust

Forms caulicolous or hypophyllous rust pustules on etiolated shoots and on midribs and veins; pulverulent and bright yellow, on *Trichilia* in Puerto Rico.

Trichilia pallida: Puerto Rico.

Uredo zarumae Jacks. & Holw. (xxx) rust

Forms yellowish, pulverulent rust pustules closely gregarious in large areas 2 to 5 cm. across, on leaves of *Clusia*. Known in Ecuador.

Clusia multiflora: Ecuador.

Ureomyces achrous Syd. (xxx) rust

Forms minute, finally pulverulent, golden-yellow rust pustules on leaves and twigs of *Dalbergia*. Known in India and Pakistan.

Dalbergia sissoo: India, Pakistan.

Uromyces ambiens Cke. (xxx) box rust

Forms yellow-brown rust pustules on leaves of *Buxus* in India and Pakistan.

Buxus sempervirens: India, Pakistan.

Uromyces amurensis Kom. (xxx) rust

Forms rust pustules, yellow and cinnamon-brown to black on leaves of *Maackia*. Distributed in Siberia, China, Manchuria, Korea, and Japan.

Maackia amurensis: China, Japan, Korea, Manchuria, Siberia.

M. amurensis var. *buergeri*: Japan.

Uromyces bauhiniicola Arth. (xxx) rust

Forms powdery, dark-brown rust pustules on both surfaces of leaves of *Bauhinia*. Distributed in Mexico and Venezuela.

Bauhinia pringlei: Mexico.

Uromyces bicinctus McAlp. (xxx) rust

Forms ruddy-brown rust pustules with yellowish-brown spores on leaves and pods of *Acacia* in Australia.

Acacia fasciculifera: Australia.

Uromyces cedrelae (P. Henn.) P. Henn. (xxx) rust

Develops dull-brown rust pustules on the lower surface of leaves of *Toona* in Java.

Toona serrata: Java.

Uromyces cladrastidis Kusano (xxx) **yellowwood rust**

Forms powdery, black rust pustules on leaves of *Cladrastis* in Japan.
Cladrastis shikokiana: Japan.

Uromyces diploglottidis Cke. & Mass. (xxx) **rust**

Forms pale brown rust pustules on leaves of *Diploglottis*. "This species was very destructive to the foliage . . ." Known in Queensland, Australia.

Diploglottis cunninghamii: Australia.

Uromyces fusisporus Cke. & Mass. (xxx) **rust**

Produces dark brown to black erumpent rust pustules with golden-brown uredospores and ruddy-brown teliospores mixed with the former. Occurs on leaves of *Acacia* in Australia.

Acacia neriifolia: Australia.

A. salicina: Australia.

Uromyces hyalosporus Saw. (xxx) **rust**

Rust on *Acacia* causing serious damage by deforming the affected phyllodes and twigs. Reported in Japan and Formosa.

Acacia confusa: Formosa.

Uromyces malloti P. Henn. (xxx) **rust**

Forms brown rust pustules on leaves of *Melanolepis* in New Guinea and the Philippines.

Melanolepis multiglandulosa: New Guinea, Philippines.

Uromyces phyllodiorum (Berk. & Br.) McAlp. (xxx) **rust**

Forms rusty-brown rust pustules with yellow spores on phyllodes of *Acacia* in Australia.

Acacia dallachiana: Australia.

A. decurrens var. *dealbata*: Australia.

A. microbotrya: Australia.

A. neriifolia: Australia.

A. notabilis: Australia.

A. penninervis: Australia.

A. pruinosa: Australia.

Uromyces shikokianus Kusano (xxx) **rust**

Forms very small, powdery, black rust pustules with chestnut-brown spores on leaves of *Cladrastis* in Japan.

Cladrastis shikokiana: Japan.

Uromyces sophorae-flavescentis Kusano (xxx) **rust**

Forms reddish-orange to brownish-black rust pustules on leaves of *Sophora* in Japan, Korea, Manchuria, and China.

Sophora angustifolia: Japan, Korea.

S. flavescentis: China, Manchuria.

Uromyces terebinthi (DC.) Wint. (xxx) pistache rust

Forms rust of leaves of *Pistacia*. Distributed in Europe, Syria, Kurdestan, and Iran.

Pistacia terebinthus: France.

P. vera: Syria.

Uromyces truncicola P. Henn. & Shir. (xxx) rust

Forms powdery, chestnut to dark-vinaceous rust pustules in crevices in the bark of branches of *Sophora* in Japan and China.

Sophora japonica: China, Japan.

Uromycladium alpinum McAlp. (xxx) rust

Forms rusty-brown rust pustules with yellow-brown to dark-brown spores on *Acacia* in Australia and Tasmania.

Acacia burrifolia: Australia.

A. dallachiana: Australia.

A. decurrens var. *dealbata*: Australia, Tasmania.

A. implexa: Australia.

Uromycladium bisporum McAlp. (xxx) rust

Forms elongate, slightly swollen chocolate-brown masses on branches and powdery patches on phyllodes. Occurs on *Acacia* in Australia and Tasmania.

Acacia decurrens var. *dealbata*: Australia, Tasmania.

Uromycladium maritimum McAlp. (xxx) rust

Forms dark-brown rust pustules on stems and phyllodes of *Acacia* in Australia and Tasmania.

Acacia longifolia: Australia, Tasmania.

Uromycladium notabile (Ludw.) McAlp. (xxx) gall rust

Forms large, swollen, distorted, yellow-brown to chocolate-brown galls on branches, phyllodes, and pods of *Acacia* in Australia and Tasmania.

Acacia binervata: Australia.

A. decurrens: Australia.

A. decurrens var. *dealbata*: Australia, Tasmania.

A. elata: Australia.

A. notabilis: Australia.

A. pruinosa: Australia.

Uromycladium robinsoni McAlp. (xxx) rust

Forms brown, powdery rust pustules on both surfaces of phyllodes of *Acacia* in Australia and Tasmania.

Acacia melanoxylon: Australia, Tasmania.

Uromycladium simplex McAlp. (xxx) rust

Produces ruddy-brown to dark-brown pustules on both surfaces of phyllodes and on branches of *Acacia* in Australia.

Acacia pycnantha: Australia.

Uromycladium tepperianum (Sacc.) McAlp. (xxx) gall rust

Forms gall-like masses along the entire length of phyllodes and large rounded galls or broad areas on branches, coated with brown, powdery spores. Occurs on many species of *Acacia* and on *Albizia*. Kills heavily attacked branches and trees. Distributed in Australia and Tasmania; and on *Albizia* in Java.

Acacia aneura: New South Wales, South Australia.

A. armata: Australia.

A. bynoeana: South Australia.

A. decurrens: Australia.

A. diffusa: Tasmania (Hobart).

A. erioclada: Australia.

A. glaucoptera: Australia.

A. hakeoides: Australia.

A. implexa: Australia.

A. juniperina: Australia.

A. ligulata: South Australia.

A. linophylla: South Australia.

A. longifolia: Australia.

A. melanoxylon: Australia.

A. myrtifolia: Australia.

A. obliqua: South Australia.

A. penninervis: South Australia.

A. pycnantha: Australia.

A. rigens: South Australia.

A. salicina: Australia.

A. siculiformis: Australia.

A. spinescens: Australia.

A. stricta: Australia, New South Wales, Tasmania (Gordon).

A. tetragonophylla: South Australia, New South Wales.

A. trineura: South Australia.

A. verniciflua: Tasmania (Hobart).

A. verticillata: Tasmania (Hobart), South Australia.

A. vomeriformis: Australia.

Albizia montana: Java.

Uropyxis fraxini (Kom.) Magn. (xxx) ash rust

Forms dark-chestnut to black rust pustules up to 2 mm. across on small yellow spots on leaves of *Fraxinus*. Distributed in Manchuria, Korea, and China.

Fraxinus chinensis: China, Manchuria.

F. chinensis var. *rhynchophylla*: Korea, Manchuria (Kirinensis Province).

Ustulina deusta (Fr.) Petr. (xx) root rot

Forms large fruiting masses, thick, undulate, brittle, when young whitish and powdery, becoming rigid. Common about the bases and exposed roots of wounded living broad-leaved trees. Distributed on a very wide range of hosts and well over the entire world where there are hardwood forests. Several names have been given this root rot, but the one used here is stated to be the correct one according to botanical rules of nomenclature.

Acacia campylacantha: Tanganyika.

Acer pseudoplatanus: Denmark.

Albizia falcata: Sumatra.
Aleurites fordii: Nyasaland.
A. montana: Ceylon, Indochina, Nyasaland.
Areca cathecu: Ceylon.
Carpinus sp.: Denmark.
Casuarina equisetifolia: Mauritius.
Ceiba pentandra: Tanganyika.
Delonix regia: Nyasaland, Tanganyika.
Elaeis guineensis: Ceylon, Malaya, Sumatra.
Eugenia jambos: Mauritius.
Fagus sylvatica: Denmark, Germany, Great Britain.
Ficus sp.: Gold Coast.
Fraxinus sp.: Denmark.
Hevea brasiliensis: Borneo, Brazil, Ceylon, Congo, French Equatorial Africa, Gold Coast, India, Indochina, Java, Malaya, Seychelles, Sierra Leone, Sumatra.
Leucaena glauca: Sumatra.
Populus sp.: Denmark.
Quercus sp.: Germany.
Theobroma cacao: Ceylon, Gold Coast, Tanganyika, West Africa.
Tilia × europaea: Denmark, Great Britain.
Ulmus sp.: Denmark.
U. procera: Great Britain.

Valsa cryptomeriae Kitajima (xx) **seedling blister**

Causes blackish-brown or reddish-brown areas on stems of seedlings of *Cryptomeria*, which become sunken and cracked and cause hypertrophy and bending of diseased seedlings in Japan.

Cryptomeria japonica: Japan.

Valsa eugeniae Nutman & Roberts (xx) **clove tree "sudden death"**

Associated with "sudden death" and dieback of trees of *Eugenia caryophyllata*. Black perithecia are formed in groups of 100 or more on the bark. It is a weak wound parasite on branches. It is always associated with a brilliant saffron-yellow, water-soluble stain in affected wood, limited by a distinct black zone line. Known only on the clove tree in Zanzibar.

Eugenia caryophyllata: Zanzibar.

Valsa kunzei Fr. (xx) **conifer canker**

Causes stem and branch cankers on numerous conifers of the subfamily Abietineae inflicting considerable damage. Recent study with American specimens shows that there are three types of fungi distinct enough to be named different varieties as follows: *Valsa kunzei* var. *kunzei* (typical) on *Abies*, *Larix*, *Pseudotsuga*, and *Tsuga*; *V. kunzei* var. *piceae* A. M. Waterman on *Picea* spp.; and *V. kunzei* var. *superficialis* A. M. Waterman on *Pinus strobus* and *P. griffithii*. The varieties are distributed in North America and Europe.

Abies alba: Great Britain.

Picea abies: Great Britain.

Valsa nivea Fr. (xx)

poplar canker

Causes bark cankers of *Populus* branches. Distributed widely in North America and Europe; also in Siberia.

Populus angulata: Denmark.

P. balsamifera: Denmark.

P. × canadensis var. *serotina*: Great Britain.

P. nigra: Great Britain.

P. tremula: Denmark, Great Britain, Siberia.

Valsa oxystoma Rehm (xx)

alder dieback

Associated with dieback of *Alnus* in Europe.

Alnus glutinosa: Germany.

A. rubra: Germany.

A. viridis: Austria, Germany, Great Britain.

Valsa paulowniae Miyabe & Hemmi (xx)

dieback

Associated with severe dieback of twigs and branches of *Paulownia* killing entire trees in Japan. Said to act much like chestnut blight.

Paulownia tomentosa: Japan.

Valsa sordida Nits. (xx)

poplar and willow canker

Causes cankers on twigs, branches, and trunks of *Populus* and *Salix*. Sprouts often develop just below the canker. Yellow to reddish spore tendrils form on the dead bark. Infection starts in dead twigs or some injury. The conidial stage known as *Cytospora chrysosperma* Fr. is most common on living diseased trees and appears first on the diseased bark. The ascogenous stage, *Valsa sordida*, develops later and not as abundantly as the *Cytospora*. Trees weakened by drought are especially liable to be attacked, and the fungus may penetrate the entire trunks and branches before attacked trees are completely dead. Distributed in North America, south to Mexico; in Argentina, Europe, Asia, Australia, and New Zealand.

Populus sp.: Italy.

P. alba: Great Britain.

P. × canadensis var. *serotina*: Great Britain.

P. deltoides: New South Wales (Leeton).

P. fremontii var. *wislizenii*: Mexico.

P. nigra: England, Scotland, Ireland.

P. nigra var. *italica*: Mexico, Argentina.

P. × robusta: Germany.

P. tremula: Germany, Great Britain.

Salix sp.: Argentina, Siberia.

S. alba var. *calva*: England.

Venturia aucupariae Rostr. (xxx)

scab

Causes scabby leaf spots with rough, brown or greenish surfaces on *Sorbus*. Distributed in northern Europe.

Sorbus sp.: Germany.

S. aucuparia: Denmark.

Venturia bellotae Speg. (xxx) scab

Forms black scabs on the lower surface of leaves of *Cryptocarya* in Chile.

Cryptocarya bellota: Chile.

Venturia chlorospora (Ces.) Aderh. (xxx) willow scab

The imperfect stage is *Fusicladium saliciperdum* (All. & Tub.) Tub. It forms olive-green fungus masses along the main veins on the lower side of the developing leaves of *Salix*. The tip of the young shoot wilts and dies, resembling frost injury. Heavy attacks accompanied by moist weather kill large trees in a few years. Thousands of roadside and streamside trees have died in Northeastern United States and Canada within a few years. Distributed in Eastern North America from Greenland and Ellesmere Land southward to West Virginia, with occurrences in North and South Carolina, Colorado, and British Columbia. It is distributed generally throughout Europe.

Salix sp.: Great Britain.

S. alba: Poland, Denmark, Germany, Netherlands.

S. alba var. *vitellina*: Netherlands.

S. amygdalina: Poland.

S. aurita: Europe.

S. babylonica: Germany, Poland.

S. × blanda: Poland.

S. caprea: Denmark.

S. cinerea: Europe.

S. fragilis: Denmark, Germany, Netherlands.

S. fragilis var. *decipiens*: Great Britain.

S. japonica: Denmark.

S. meyeriana: Denmark, Netherlands.

S. × mollissima: Denmark.

S. myrsinifolia: Netherlands, Norway.

S. pentandra: Germany, Netherlands.

S. purpurea: Germany, Poland.

S. viminalis: Germany, Poland.

Venturia crataegi Aderh. (xxx) hawthorn scab

Forms black, scabby spots on fruits of *Crataegus* in Florida, Germany, and Denmark.

Crataegus oxyacantha: Germany (Erfurt).

Venturia ditricha (Fr.) Karst. (xxx) birch scab

Forms black spore pustules on leaves of *Betula*. Distributed widely in North America and Europe.

Betula pendula: Denmark, Norway.

B. pubescens: Norway.

Venturia fraxini (Rostr.) Aderh. (xxx) ash scab

Forms black, globose perithecia on the lower leaf surface of *Fraxinus*. Distributed in Florida and northern Europe.

Fraxinus sp.: Germany.

F. excelsior: Denmark.

Venturia populina (Vuill.) Tub. (xx) **poplar scab**

Associated with defoliation and dieback of *Populus* shoots. Distributed in Europe.

Populus alba: Norway.

P. × canadensis: Italy.

P. deltoides: Hungary, Italy.

P. nigra var. *italica*: France, Germany, Italy.

P. × robusta: Italy.

P. tremula: Denmark, Norway.

Venturia tremulae Aderh. (xxx) **poplar scab**

Associated with leaf scab, withering of leaves and shoots, and defoliation of *Populus*. Distributed in North America and Europe.

Populus alba: Denmark, Germany, Italy, Netherlands.

P. alba f. *pyramidalis*: Germany.

P. × canadensis: Italy.

P. × canescens: Netherlands, Denmark, Germany.

P. nigra: Denmark, Italy, Russia (Kazan).

P. nigra var. *italica*: Denmark.

P. tremula: Denmark, Germany, Italy, Netherlands, Norway, Russia.

Verticillium albo-atrum Reinke & Berth. (xx) **wilt**

A parasite readily infecting wounds that expose the tissues within the cortex, both above and below the soil surface. Infection extends into the wood vessels; the mycelium stimulates formation of tyloses in the vascular tissues and interrupts conduction of water, causing wilting. Affected tissues are discolored within in streaks or single annual rings. Maples commonly have green discolorations, while in other hosts they may be brown. Wilt occurs in single small branches or in large main branches of the tree top. Many broad-leaved species may be attacked. Distributed generally in temperate North America, in Europe, and in the Congo, Australia, and New Zealand.

Acer campestre: Italy.

A. ginnala: Germany.

A. negundo: Germany.

A. platanoides: Germany, Italy.

A. platanoides f. *globosum*: Germany.

A. platanoides f. *schwedleri*: Germany.

A. pseudoplatanus: France, Germany.

Aesculus hippocastanum: Germany.

Ailanthus altissima: Italy.

Castanea sativa: Germany.

Cercis siliquastrum: Italy.

Leucaena glauca: Congo.

Populus tremula: Germany.

Quercus sp.: France.

Sophora japonica: Italy.

Tilia cordata: Germany.

T. × euchlora: Germany.

T. tomentosa: Germany.

Ulmus sp.: Germany.

U. glabra: Italy.

Verticillium dahliae Kleb. (xx) wilt

See *Verticillium albo-atrum* for a general description of this wilt. The two parasites are much alike and may be varieties of a single species. They cause similar symptoms and attack the same trees in nurseries and in land that has been cultivated, but not in wild stands. Reports of occurrence seem to indicate that *V. dahliae* is not as generally distributed as is *V. albo-atrum*. Reported in Colombia, France, Netherlands, Sumatra, and New Zealand.

Acer platanoides f. *schwedleri*: Netherlands.

A. pseudoplatanus: France.

Ailanthus altissima: France.

Koelreuteria paniculata: France.

Ulmus glabra: Netherlands.

Volutella buxi (Fr.) Berk. & Br. (xx) box blight

Associated with stem cankers causing blight with straw-yellow flags of dead twigs on *Buxus*. Myriads of pink powdery spores often develop on the back of dead leaves and twigs. Distributed in North America and Europe where box is grown.

Buxus sempervirens: Spain (Seville and Madrid).

Volvaria bombycina Fr. (xx) heart rot

Pileus fleshy, 6 to 10 cm. across, fine, dense, silky-fibrillose above, entirely white except gills, which are pink; stem central with distinct cupulate basal volva. A wound parasite, especially where large branches break out of the main trunk of broad-leaved trees. Not on conifers. Distributed widely but is not abundant in the United States, Canada, Cuba, Europe, and Siberia.

Betula pendula: Siberia.

Fagus sylvatica: Germany.

Xylaria apiculata Cke. (xx) root rot

Forms club-shaped, single or branched, upright, white or gray to black fruit-bodies, 3 to 10 mm. in diameter and 1 to 5 cm. high, growing from buried roots or at the base of injured broad-leaved living trees. The *Xylarias* commonly are saprophytic but can attack open wounds on living trees. They cause stringy white rot in the infected wood. *Xylaria apiculata* kills trees of *Erythroxylon* sp. in Java.

Erythroxylon coca: East Indies (Java).

Xylaria deserticola Speg. (xx) root rot

See *Xylaria apiculata* for a general account of these wound parasites. *X. deserticola* is reported as causing root rot of *Hevea* and *Ficus* in Malaya and India.

Hevea brasiliensis: Malaya.

Xylaria polymorpha (Fr.) Grev. (xx) root rot

This root rot is like the preceding *Xylariae* but is larger and more robust. It is distributed widely in North America, Europe, and India.

Shorea robusta: India.

Xylaria thwaitesii Cke. (xx)**root rot**

Forms black, flat bands or patches on roots of *Hevea*. Diseased trees die. Causes a brownish-gray, moist rot, hard at the center but with soft decay on the outside. Distributed in Ceylon, Indochina, Java, and Sumatra.

Hevea brasiliensis: Ceylon, India, Indochina, Java, Sumatra.

Tectona grandis: East Indies.

Zaghouania phillyreae (DC.) Pat. (xxx)**rust**

Forms golden-yellow rust pustules on petioles, leaf blades, and stems of *Phillyrea*. Distributed in Europe and northern Africa.

Phillyrea sp.: Morocco.

P. angustifolia: Corsica.

HOST INDEX OF THE DISEASES

This section lists the host trees alphabetically by their scientific names with their authors and many common names; all have been checked by Elbert L. Little, Jr. The scientific host names are believed to be correct under the International Code of Botanical Nomenclature and are generally accepted in usage. Synonyms are not given. The reported pathogens are listed alphabetically within their groups by their scientific names but without authors or common names because these are given in the preceding section.

Abies Mill.	fir	<i>M. epitea</i>
<i>Caliciopsis pinea</i>		<i>Melampsorella caryophyllacearum</i>
<i>Ceratocystis piceae</i>		<i>Milesia blechni</i>
<i>Diplodia pinea</i>		<i>M. kriegeriana</i>
<i>Fomes pinicola</i>		<i>M. polypodii</i>
<i>Ganoderma applanatum</i>		<i>M. scolopendrii</i>
<i>Hydnum cirrhatum</i>		<i>M. vogesiaca</i>
<i>Melampsorella caryophyllacearum</i>		<i>Nectria cucurbitula</i>
<i>Polyporus schweinitzii</i>		<i>Pellicularia filamentosa</i>
<i>P. sulphureus</i>		<i>Pestalotia hartigii</i>
<i>Stereum abietinum</i>		<i>Pezicula livida</i>
Abies alba Mill.	silver fir	<i>Phacidiopycnis pseudotsugae</i>
<i>Acanthostigma parasiticum</i>		<i>Phaeocryptopus nudus</i>
<i>Aleurodiscus amorphus</i>		<i>Pholiota adiposa</i>
<i>Armillaria mellea</i>		<i>P. aurivella</i>
<i>Botrytis cinerea</i>		<i>Phomopsis abietina</i>
<i>Cenangium ferruginosum</i>		<i>Phytophthora cactorum</i>
<i>Chrysomya ledi</i> var. <i>rhododendri</i>		<i>Pleurotus mitis</i>
<i>Corticium galactinum</i>		<i>Polyporus schweinitzii</i>
<i>C. odoratum</i>		<i>P. sulphureus</i>
<i>Cucurbitaria pithyophila</i>		<i>Poria vaporaria</i>
<i>Cytospora pinastri</i>		<i>Pucciniastrum epilobii</i>
<i>Dasyscypha calyciformis</i>		<i>P. goeppertianum</i>
<i>D. subtilissima</i>		<i>Pythium debaryanum</i>
<i>Fomes annosus</i>		<i>Rehmiellopsis abietis</i>
<i>F. pini</i>		<i>Rhizina undulata</i>
<i>F. pomaceus</i>		<i>Stereum sanguinolentum</i>
<i>F. robustus</i>		<i>Valsa kunzei</i>
<i>Fusarium bulbigenum</i> var. <i>blasticola</i>		Abies cephalonica Loud.
<i>F. oxysporum</i> var. <i>aurantiacum</i>		Greek fir
<i>Ganoderma applanatum</i>		<i>Dasyscypha calyciformis</i>
<i>Helicobasidium purpureum</i>		<i>Fusarium oxysporum</i> var. <i>aurantiacum</i>
<i>Hyalospora aspidiotus</i>		<i>Hypodermella nervisequia</i>
<i>Hypodermella lirelliformis</i>		<i>Melampsorella caryophyllacearum</i>
<i>H. nervisequia</i>		<i>Milesia kriegeriana</i>
<i>Lophodermium piceae</i>		<i>M. polypodii</i>
<i>Melampsora abietis-capraearum</i>		<i>M. scolopendrii</i>

Abies cephalonica Loud.	Greek fir	<i>Pucciniastrum goeppertianum</i>
(Continued)		<i>Rehmiellopsis abietis</i>
<i>M. vogesiaca</i>		Abies pindrow Spach
<i>Rehmiellopsis abietis</i>		Pindrow fir
Abies concolor (Gord. & Glend.) Lindl.		<i>Armillaria mellea</i>
	white fir	<i>Fomes annosus</i>
<i>Hypoderma robustum</i>		<i>F. pini</i>
<i>Melampsorella caryophyllacearum</i>		<i>F. pinicola</i>
Abies fabri (Mast.) Craib	Faber fir	<i>Polyporus sulphureus</i>
<i>Hypodermella nervisequia</i>		<i>Rehmiellopsis abietis</i>
Abies firma Sieb. & Zucc.	momí fir	Abies pinsapo Boiss.
<i>Dasyscypha calyciformis</i>		Spanish fir
<i>Fomes pinicola</i>		<i>Armillaria mellea</i>
<i>Melampsorella caryophyllacearum</i>		<i>Chrysomyxa woronini</i>
<i>Milesia vogesiaca</i>		<i>Cytospora pinastri</i>
<i>Phytophthora cactorum</i>		<i>Diplodia pinea</i>
<i>Uredinopsis ossaeiformis</i>		<i>Fomes annosus</i>
Abies forrestii Craib	Forrest fir	<i>Hypodermella nervisequia</i>
<i>Melampsorella caryophyllacearum</i>		<i>Lophodermium piceae</i>
Abies georgei Orr	George fir	<i>Macrophoma pinsaponis</i>
<i>Fomes annosus</i>		<i>Melampsorella caryophyllacearum</i>
<i>F. nigrolimitatus</i>		<i>Milesia kriegeiana</i>
<i>Polyporus dryadeus</i>		<i>M. polypodii</i>
<i>P. schweinitzii</i>		<i>M. scolopendrii</i>
Abies grandis (Dougl.) Lindl.	grand fir	<i>M. vogesiaca</i>
<i>Pucciniastrum epilobii</i>		<i>Naemacyclus niveus</i>
<i>Pythium torulosum</i>		<i>Rehmiellopsis abietis</i>
Abies homolepis Sieb. & Zucc.		Abies sachalinensis Mast.
	Nikko fir	Sakhalin fir
<i>Dasyscypha abieticola</i>		<i>Fomes annosus</i>
Abies mariesii Mast.	Maries fir	<i>F. officinalis</i>
<i>Fomes annosus</i>		<i>F. pini</i>
<i>Hypodermella nervisequia</i>		<i>F. pinicola</i>
<i>Polyporus balsameus</i>		<i>F. robustus</i>
Abies nephrolepis Maxim.	Khingan fir	<i>Fusarium oxysporum</i> var. <i>auranti-</i>
<i>Fomes robustus</i>		<i>acum</i>
<i>Polyporus schweinitzii</i>		<i>Ganoderma applanatum</i>
Abies nordmanniana (Steven) Spach		<i>Hyalopsora aculeata</i>
	Nordmann fir	<i>Melampsorella caryophyllacearum</i>
<i>Acanthostigma parasiticum</i>		<i>Milesia itoana</i>
<i>Cucurbitaria pithyophila</i>		<i>M. jezoensis</i>
<i>Dasyscypha calyciformis</i>		<i>M. vogesiaca</i>
<i>Fomes robustus</i>		<i>Polyporus balsameus</i>
<i>Fusarium oxysporum</i> var. <i>auranti-</i>		<i>P. schweinitzii</i>
<i>acum</i>		<i>P. sulphureus</i>
<i>Melampsorella caryophyllacearum</i>		<i>P. tomentosus</i>
<i>Milesia kriegeiana</i>		<i>Poria tsugina</i>
<i>M. polypodii</i>		<i>Pucciniastrum goeppertianum</i>
<i>M. scolopendrii</i>		<i>P. kusanoi</i>
<i>M. vogesiaca</i>		<i>Uredinopsis adianti</i>
<i>Nectria cucurbitula</i>		<i>U. athyrii</i>
<i>Polyporus berkeleyi</i>		<i>U. filicina</i>
<i>P. dryadeus</i>		<i>U. hirosakiensis</i>
		<i>U. intermedia</i>
		<i>U. kameiana</i>
		<i>U. ossaeiformis</i>

Abies sachalinensis Mast. Sakhalin fir	Acacia angustissima (Mill.) Kuntze
(Continued)	prairie acacia
<i>U. struthiopteridis</i>	<i>Ravenelia expansa</i>
<i>U. woodsiae</i>	<i>R. leucaenae-microphyllae</i>
Abies sibirica Ledeb. Siberian fir	Acacia anisophylla S. Wats. ———
<i>Armillaria mellea</i>	<i>Ravenelia farlowiana</i>
<i>Coniophora puteana</i>	Acacia armata R. Br.
<i>Dasyascypha calyciformis</i>	kangaroo-thorn acacia
<i>Fomes annosus</i>	<i>Fomes robiniae</i>
<i>F. fomentarius</i>	<i>Uromycladium tepperianum</i>
<i>F. pini</i>	Acacia aulalocarpa A. Cunn. ———
<i>F. pinicola</i>	<i>Fomes badius</i>
<i>F. robustus</i>	<i>F. linteus</i>
<i>Fusarium oxysporum</i> var. <i>auranti-</i>	Acacia binervata DC.
<i>acum</i>	twinvein-wattle acacia
<i>Herpotrichia nigra</i>	<i>Uromycladium notabile</i>
<i>Melampsora epitea</i>	Acacia bursaria Schenck ———
<i>Melampsorella caryophyllacearum</i>	<i>Uredo acaciae-bursariae</i>
<i>Phaeocryptopus nudus</i>	Acacia buxifolia A. Cunn.
<i>Polyporus resinosus</i>	boxleaf acacia
<i>P. schweinitzii</i>	<i>Uromycladium alpinum</i>
<i>Pucciniastrum epilobii</i>	Acacia bynoeana Benth. ———
<i>P. goeppertianum</i>	<i>Uromycladium tepperianum</i>
<i>Rehmiellopsis abietis</i>	Acacia campylacantha Hochst. ———
<i>Stereum sanguinolentum</i>	<i>Ustulina deusta</i>
Abies veitchii Lindl. Veitch fir	Acacia catechu (L.f.) Willd.
<i>Fomes annosus</i>	catechu acacia
<i>Fusarium oxysporum</i> var. <i>auranti-</i>	<i>Erysiphe acaciae</i>
<i>acum</i>	<i>Fomes badius</i>
<i>Poria subacida</i>	<i>Ganoderma applanatum</i>
Abrus praecatorius L.	<i>G. lucidum</i>
jequirity rosary-pea (weather plant)	<i>Polyporus gilvus</i>
<i>Phyllachora perforans</i>	Acacia cavenia (Molina) Hook. & Arn.
Acacia Mill. acacia	cavenia acacia
<i>Armillaria mellea</i>	<i>Ravenelia australis</i>
<i>Fomes conchatus</i>	Acacia choriophylla Benth. ———
<i>F. fomentarius</i>	<i>Phyllachora acaciae</i>
<i>F. lignosus</i>	Acacia cochliacantha Humb. & Bonpl. ———
<i>F. robustus</i>	<i>Ravenelia expansa</i>
<i>Ganoderma applanatum</i>	Acacia concinna (Willd.) DC. ———
<i>G. lucidum</i>	Virus, mosaic
<i>Hapalophragmium acaciae</i>	Acacia confusa Merr. ———
<i>Polyporus schweinitzii</i>	<i>Cercospora acaciae-confusae</i>
<i>Ravenelia leucaenae-microphyllae</i>	<i>Corticium salmonicolor</i>
Acacia abyssinica Hochst. ———	<i>Ganoderma lucidum</i>
<i>Aecidium immersum</i>	<i>Uromyces hyalosporus</i>
<i>Stereum hirsutum</i>	Acacia crassifolia A. Gray ———
Acacia aculeata Benth. ———	<i>Ravenelia farlowiana</i>
<i>Phyllachora acaciae</i>	Acacia dallachiana F. Muell. ———
Acacia amentasea DC. ———	<i>Uromyces phyllodiorum</i>
<i>Phyllachora acaciae</i>	<i>Uromycladium alpinum</i>
Acacia aneura F. Muell. ———	
<i>Uromycladium tepperianum</i>	

Acacia decurrens Willd.		Acacia horrida (L.) Willd.	
green-wattle acacia		allthorn acacia	
<i>Armillaria mellea</i>		<i>Ganoderma applanatum</i>	
<i>Camptomeris verruculosa</i>		Acacia implexa Benth.	lightwood acacia
<i>Cercospora theae</i>		<i>Uromycladium alpinum</i>	
<i>Corticium salmonicolor</i>		<i>U. tepperianum</i>	
<i>Fomes lamaoensis</i>		Acacia juniperina Willd.	
<i>Macrophomina phaseoli</i>		juniper-wattle acacia	
<i>Physalospora abdita</i>		<i>Uromycladium tepperianum</i>	
<i>Schizophyllum commune</i>		Acacia koa A. Gray	koa acacia
<i>Uromycladium notabile</i>		<i>Lophodermium acacicolum</i>	
<i>U. tepperianum</i>		Acacia leucophloea (Roxb.) Willd.	
Acacia decurrens var. <i>dealbata</i> F.			
Muell.	silvergreen-wattle acacia	<i>Catacauma acaciae</i>	
<i>Armillaria mellea</i>		<i>Corticium salmonicolor</i>	
<i>Cercospora theae</i>		<i>Hapalophragmiopsis ponderosa</i>	
<i>Uromyces phyllodiorum</i>		Acacia ligulata A. Cunn.	
<i>Uromycladium alpinum</i>		<i>Uromycladium tepperianum</i>	
<i>U. bisporum</i>		Acacia linophylla W. V. Fitzg.	
<i>U. notabile</i>		<i>Uromycladium tepperianum</i>	
Acacia decurrens var. <i>mollis</i> Lindl.		Acacia longifolia (Andr.) Willd.	
blackgreen-wattle acacia		Sydney acacia	
<i>Armillaria mellea</i>		<i>Uromycladium maritimum</i>	
<i>Cylindrocladium scoparium</i>		<i>U. tepperianum</i>	
<i>Ganoderma applanatum</i>		Acacia macracantha Humb. & Bonpl.	
<i>G. lucidum</i>		longspine acacia	
<i>Physalospora abdita</i>		<i>Phyllachora acaciae</i>	
<i>Schizophyllum commune</i>		Acacia melanoxylon R. Br.	
<i>Trametes obstinatus</i>		blackwood acacia	
Acacia diffusa Lindl.	pinbush acacia	<i>Armillaria mellea</i>	
<i>Uromycladium tepperianum</i>		<i>Cercospora theae</i>	
Acacia eburnea (L.f.) Willd.		<i>Fusarium coeruleum</i>	
ivory acacia		<i>Ganoderma lucidum</i>	
<i>Aecidium esculentum</i>		<i>Macrophomina phaseoli</i>	
Acacia elata A. Cunn.	cedar acacia	<i>Uromycladium robinsoni</i>	
<i>Macrophomina phaseoli</i>		<i>U. tepperianum</i>	
<i>Uromycladium notabile</i>		Acacia mellifera (Vahl) Benth.	
Acacia erioclada Benth.		<i>Ravenelia acaciae-melliferae</i>	
<i>Uromycladium tepperianum</i>		Acacia microbotrya Benth.	
Acacia farnesiana (L.) Willd.		badjong acacia	
sweet acacia		<i>Uromyces phyllodiorum</i>	
<i>Phyllachora acaciae</i>		Acacia modesta Wall.	
<i>Ravenelia acaciae-farnesianae</i>		<i>Ravenelia taslimii</i>	
<i>R. formosana</i>		Acacia myrtifolia (Sm.) Willd.	
<i>R. spagazziniana</i>		myrtle acacia	
Acacia fasciculifera F. Muell.		<i>Uromycladium tepperianum</i>	
fascicled acacia		Acacia neriifolia A. Cunn.	
<i>Uromyces bicinctus</i>		oleander acacia	
Acacia glaucoptera Benth.		<i>Uromyces fusisporus</i>	
<i>Uromycladium tepperianum</i>		<i>U. phyllodiorum</i>	
Acacia hakeoides A. Cunn.		Acacia notabilis F. Muell.	
<i>Uromycladium tepperianum</i>		<i>Uromyces phyllodiorum</i>	
Acacia hirtella E. Mey.		<i>Uromycladium notabile</i>	
<i>Ravenelia natalensis</i>		Acacia obliqua A. Cunn.	finger acacia
		<i>Uromycladium tepperianum</i>	

<i>Acacia pennatula</i> (Schlecht. & Cham.) Benth.	<i>Acacia tetragonophylla</i> F. Muell.
<i>Ravenelia acaciae-pennatulae</i>	<i>Uromycladium tepperianum</i>
<i>Acacia penninervis</i> Sieb.	<i>Acacia trineura</i> F. Muell.
mountain-hickory	<i>Uromycladium tepperianum</i>
<i>Uromyces phyllodiorum</i>	<i>Acacia unijuga</i> Rose
<i>Uromycladium tepperianum</i>	<i>Phyllachora acaciae</i>
<i>Acacia podalyriaefolia</i> A. Cunn.	<i>Acacia verniciflua</i> A. Cunn.
pearl acacia	<i>Uromycladium tepperianum</i>
<i>Armillaria mellea</i>	<i>Acacia verticillata</i> (L'Hér.) Willd.
<i>Acacia pruinosa</i> A. Cunn.	star acacia
frosty-stem acacia	<i>Uromycladium tepperianum</i>
<i>Uromyces phyllodiorum</i>	<i>Acacia villosa</i> (Sw.) Willd.
<i>Uromycladium notabile</i>	<i>Camptomeris martynii</i>
<i>Acacia pycnantha</i> Benth.	<i>Acacia vomeriformis</i> A. Cunn.
golden-wattle acacia	<i>Uromycladium tepperianum</i>
<i>Armillaria mellea</i>	<i>Acer</i> L.
<i>Uromycladium simplex</i>	<i>Armillaria mellea</i>
<i>U. tepperianum</i>	<i>Centrospora acerina</i>
<i>Acacia rigens</i> A. Cunn.	<i>Daedalea unicolor</i>
<i>Uromycladium tepperianum</i>	<i>Fomes connatus</i>
<i>Acacia robusta</i> Burch.	<i>Ganoderma resinaceum</i>
<i>Ravenelia evansii</i>	<i>Hymenochaete mougeotii</i>
<i>Acacia salicina</i> Lindl.	<i>Phytophthora cactorum</i>
willow acacia	<i>Polyporus litschaueri</i>
<i>Uromyces fusisporus</i>	<i>Pythium debaryanum</i>
<i>Uromycladium tepperianum</i>	<i>Steccherinum septentrionale</i>
<i>Acacia scorpioides</i> (L.) W. F. Wight	<i>Acer aidzuensis</i> (Franch.) Nakai
babul acacia	<i>Xanthomonas acernea</i>
<i>Fomes badius</i>	<i>Rhytisma punctatum</i>
<i>F. robiniae</i>	<i>Acer buergerianum</i> Miq.
<i>Ganoderma applanatum</i>	trident maple
<i>G. lucidum</i>	<i>Xanthomonas acernea</i>
<i>Polyporus gilvus</i>	<i>Acer caesium</i> Wall.
<i>Schizophyllum commune</i>	<i>Pucciniastrum aceris</i>
<i>Acacia senegal</i> (L.) Willd.	<i>Rhytisma acerinum</i>
gumarabic acacia	<i>Acer campestre</i> L.
<i>Polyporus hispidus</i>	hedge maple
<i>Acacia seyal</i> Delile	<i>Asteroma aceris</i>
seyal acacia	<i>Cercospora acericola</i>
<i>Aecidium schweinfurthii</i>	<i>Helicobasidium mompa</i>
<i>Fomes robiniae</i>	<i>H. purpureum</i>
<i>Leveillula taurica</i>	<i>Marssonina acerina</i>
<i>Ravenelia macowaniana</i>	<i>M. decolorans</i>
<i>Acacia siculiformis</i> A. Cunn.	<i>M. truncatula</i>
streamlet acacia	<i>Nectria cinnabarina</i>
<i>Uromycladium tepperianum</i>	<i>Phleospora aceris</i>
<i>Acacia spinescens</i> Benth.	<i>Phyllosticta aceris</i>
<i>Uromycladium tepperianum</i>	<i>P. campestris</i>
<i>Acacia stricta</i> (Andr.) Willd.	<i>Poria obliqua</i>
<i>Uromycladium tepperianum</i>	<i>Rhytisma acerinum</i>
<i>Acacia suma</i> Buch.-Ham.	<i>R. punctatum</i>
suma-catechu acacia	<i>Septogloeum hartigianum</i>
<i>Fomes badius</i>	<i>Taphrina acericola</i>
<i>Acacia tequilana</i> S. Wats.	<i>Uncinula aceris</i>
<i>Ravenelia expansa</i>	<i>Verticillium albo-atrum</i>

<i>Acer capillipes</i> Maxim.	_____	<i>Acer mono</i> f. <i>marmoratum</i> (Nichols.) Rehd.	painted mono maple
<i>Xanthomonas acernea</i>		<i>Pucciniastrum aceris</i>	
<i>Acer cappadocicum</i> Gleditsch f. <i>rubrum</i> (Kirchn.) Rehd.		<i>Acer negundo</i> L.	boxelder
red coliseum maple		Virus, mosaic	
<i>Nectria cinnabarina</i>		<i>Xanthomonas acernea</i>	
<i>Acer catalpifolium</i> Rehd.		<i>Cryptostroma corticale</i>	
catalpa maple		<i>Marssonina decolorans</i>	
<i>Uncinula aceris</i>		<i>M. truncatula</i>	
<i>Acer caudatum</i> Wall. var. <i>multiserra-</i> <i>tum</i> (Maxim.) Rehd.	_____	<i>Nectria coccinea</i>	
<i>Uncinula aceris</i>		<i>Phyllosticta negundicola</i>	
<i>Acer caudatum</i> Wall. var. <i>prattii</i> Rehd.	_____	<i>Uncinula aceris</i>	
<i>Rhytisma punctatum</i>		<i>Verticillium albo-atrum</i>	
<i>Acer cissifolium</i> (Sieb. & Zucc.) K. Koch	_____	<i>Acer nikoense</i> Maxim.	Nikko maple
<i>Rhytisma acerinum</i>		<i>Rhytisma punctatum</i>	
<i>Acer</i> × <i>coriaceum</i> Tausch.		<i>Acer nipponicum</i> Hara	_____
thickleaf maple		<i>Xanthomonas acernea</i>	
<i>Rhytisma punctatum</i>		<i>Acer oblongum</i> Wall.	_____
<i>Acer crataegifolium</i> Sieb. & Zucc.		<i>Schizothyrium annuliforme</i>	
hawthorn maple		<i>Acer opalus</i> Mill.	_____
<i>Xanthomonas acernea</i>		<i>Centrospora acerina</i>	
<i>Acer diabolicum</i> K. Koch	devil maple	<i>Acer orientale</i> L.	oriental maple
<i>Xanthomonas acernea</i>		<i>Marssonina acerina</i>	
<i>Acer diabolicum</i> f. <i>purpurascens</i> (Franch. & Sav.) Rehd.		<i>Rhytisma acerinum</i>	
red devil maple		<i>Taphrina polyspora</i>	
<i>Taphrina nikkoensis</i>		<i>Acer palmatum</i> Thunb.	Japanese maple
<i>Acer ginnala</i> Maxim.	Amur maple	<i>Xanthomonas acernea</i>	
<i>Verticillium albo-atrum</i>		<i>Endothia parasitica</i>	
<i>Acer insulare</i> Makino	_____	<i>Nectria cinnabarina</i>	
<i>Xanthomonas acernea</i>		<i>N. galligena</i>	
<i>Acer japonicum</i> Thunb.	fullmoon maple	<i>Phytophthora cactorum</i>	
<i>Rhytisma acerinum</i>		<i>Rhytisma acerinum</i>	
<i>R. punctatum</i>		<i>R. salicinum</i>	
<i>R. salicinum</i>		<i>Uncinula aceris</i>	
<i>Acer lobelii</i> Ten.	Lobel maple	<i>U. tulasnei</i>	
<i>Nectria cinnabarina</i>		<i>Acer palmatum</i> f. <i>atropurpureum</i> (Vanh.) Schwer.	bloodleaf Japanese maple
<i>Acer mandshuricum</i> Maxim.		<i>Nectria cinnabarina</i>	
Manchurian maple		<i>Acer palmatum</i> var. <i>matsumurae</i> (Koidz.) Makino	_____
<i>Fomes fomentarius</i>		<i>Rhytisma acerinum</i>	
<i>Acer mono</i> Maxim.	mono maple	<i>R. punctatum</i>	
<i>Xanthomonas acernea</i>		<i>Acer palmatum</i> f. <i>sessilifolium</i> (Sieb. & Zucc.) Rehd.	stalkless Japanese maple
<i>Ceratocystis piceae</i>		<i>Nectria cinnabarina</i>	
<i>Fomes connatus</i>		<i>Acer platanoides</i> L.	Norway maple
<i>F. fomentarius</i>		<i>Armillaria mellea</i>	
<i>Ganoderma applanatum</i>		<i>Ascochyta pallida</i>	
<i>Helicobasidium mompa</i>		<i>Centrospora acerina</i>	
<i>Rhytisma acerinum</i>		<i>Cryptostroma corticale</i>	
<i>Steccherinum septentrionale</i>		<i>Daedalea unicolor</i>	
<i>Uncinula aceris</i>		<i>Fomes connatus</i>	
<i>U. tulasnei</i>			

Acer platanoides L.	Norway maple	<i>R. quercina</i>
(Continued)		<i>Uncinula aceris</i>
<i>F. ignarius</i>		<i>Ustulina deusta</i>
<i>Mycosphaerella maculiformis</i>		<i>Verticillium albo-atrum</i>
<i>Nectria cinnabarina</i>		<i>V. dahliae</i>
<i>Phleospora platanoidis</i>		Acer pseudoplatanus f. worleei Rosenth.
<i>P. pseudoplatani</i>		yellow planetree maple
<i>Phyllosticta aceris</i>		<i>Nectria cinnabarina</i>
<i>Polyporus squamosus</i>		Acer rufrinerve Sieb. & Zucc.
<i>Rhytisma acerinum</i>		redvein maple
<i>Steccherinum septentrionale</i>		<i>Xanthomonas acernea</i>
<i>Stereum purpureum</i>		<i>Marssonina acerina</i>
<i>Taphrina acerina</i>		Acer saccharinum L.
<i>Uncinula aceris</i>		silver maple
<i>U. tulasnei</i>		<i>Marssonina truncatula</i>
<i>Verticillium albo-atrum</i>		Acer shirasawanum Koidz.
Acer platanoides f. globosum Schwer.		<i>Xanthomonas acernea</i>
globe Norway maple		Acer sieboldianum Miq.
<i>Verticillium albo-atrum</i>		Siebold maple
Acer platanoides f. rubrum (Herd.)		<i>Xanthomonas acernea</i>
Pax bloodleaf Norway maple		Acer tataricum L.
<i>Phleospora platanoidis</i>		Tatarian maple
Acer platanoides f. schwedleri (K.		<i>Taphrina polyspora</i>
Koch) Schwerin		Achras zapota L.
Schwedler Norway maple		sapodilla
<i>Nectria cinnabarina</i>		<i>Elsinoë lepagei</i>
<i>Verticillium albo-atrum</i>		<i>Phyllosticta sapotae</i>
<i>V. dahliae</i>		<i>Scopella sapotae</i>
Acer pseudoplatanus L.		Acrocarpus fraxinifolius Wight & Arn.
planetree maple		
<i>Virus, mosaic</i>		<i>Armillaria mellea</i>
<i>Armillaria mellea</i>		<i>Ganoderma lucidum</i>
<i>Centrospora acerina</i>		Acrocomia aculeata (Jacq.) Lodd.
<i>Cristulariella depraedans</i>		grugru acrocomia
<i>Cryptostroma corticale</i>		<i>Pestalotia palmarum</i>
<i>Daedalea unicolor</i>		Adansonia digitata L.
<i>Euryachora rhytismoides</i>		baobab tree
<i>Fomes fomentarius</i>		<i>Virus, swollen shoot</i>
<i>Ganoderma applanatum</i>		Adenanthera pavonina L.
<i>Gnomonia pseudoplatani</i>		sandal beadtrees
<i>Guignardia rhytismophila</i>		<i>Clitocybe tabescens</i>
<i>Marssonina acerina</i>		Adenaria floribunda H. B. K.
<i>M. decolorans</i>		Adenaria floribunda var. purpurata (H.
<i>Myxosporium devastans</i>		B. K.) Koehne
<i>Nectria cinnabarina</i>		<i>Aecidium adenariae</i>
<i>N. ditissima</i>		Aegiphila sellowiana Cham.
<i>N. galligena</i>		Sphaceloma aegiphilae
<i>Phleospora aceris</i>		Aesculus ×carnea Hayne
<i>P. pseudoplatani</i>		red horsechestnut
<i>Phytophthora cactorum</i>		<i>Stereum purpureum</i>
<i>Polyporus hispidus</i>		Aesculus glabra Willd.
<i>P. squamosus</i>		Ohio buckeye
<i>Rhytisma acerinum</i>		<i>Guignardia aesculi</i>
<i>R. punctatum</i>		Aesculus hippocastanum L.
<i>Rosellinia necatrix</i>		horsechestnut
		<i>Virus, mosaic</i>
		<i>Armillaria mellea</i>
		<i>Ascochyta aesculi</i>

Aesculus hippocastanum L.		Albizia coriaria Welw.	_____
(Continued)	horsechestnut	<i>Camptomeris albizziae</i>	
<i>A. grandimaculans</i>		Albizia falcata (L.) Backer	_____
<i>Botrytis cinerea</i>		<i>Fomes lamaoensis</i>	
<i>Collybia velutipes</i>		<i>Ganoderma lucidum</i>	
<i>Daedalea unicolor</i>		<i>Helicobasidium compactum</i>	
<i>Fomes connatus</i>		<i>Macrophomina phaseoli</i>	
<i>F. fomentarius</i>		<i>Physalospora rhodina</i>	
<i>Ganoderma applanatum</i>		<i>Ustulina deusta</i>	
<i>Guignardia aesculi</i>		Albizia fastigiata Oliv.	
<i>Nectria cinnabarina</i>		flatcrown albizia	
<i>N. ditissima</i>		<i>Fomes lignosus</i>	
<i>Phleospora parcissima</i>		<i>Ganoderma applanatum</i>	
<i>Phyllosticta aesculana</i>		<i>G. lucidum</i>	
<i>Polyporus squamosus</i>		Albizia ferruginea Benth.	_____
<i>Schizophyllum commune</i>		<i>Camptomeris albizziae</i>	
<i>Septoria aesculi</i>		Albizia grandibracteata Taub.	_____
<i>S. aesculina</i>		<i>Camptomeris albizziae</i>	
<i>Stereum purpureum</i>		Albizia gummifera (F. J. Gmel.) C. A.	
<i>Verticillium albo-atrum</i>		Smith	_____
Aesculus indica Hook.		<i>Armillaria mellea</i>	
	India horsechestnut	Albizia julibrissin Durazz.	silktree
<i>Fomes annosus</i>		<i>Fusarium oxysporum</i> var. <i>pernici-</i>	
<i>F. senex</i>		<i>sum</i>	
<i>Guignardia aesculi</i>		<i>Nectria cinnabarina</i>	
Aesculus pavia L.	red buckeye	<i>Ravenelia japonica</i>	
<i>Armillaria mellea</i>		Albizia kalkora (Roxb.) Prain	_____
Aesculus turbinata Blume		<i>Cercospora glauca</i>	
	Japanese horsechestnut	<i>Ravenelia japonica</i>	
<i>Xanthomonas acernea</i>		Albizia lebbek (L.) Benth.	lebbek
Agathis alba (Lam.) Foxw.		Virus, mosaic	
	white dammar-pine	<i>Camptomeris albizziae</i>	
<i>Aecidium balansae</i>		<i>C. albizziicola</i>	
Agathis australis Salisb.	kauri-pine	<i>Fomes robiniae</i>	
<i>Hymenochaete mougeotii</i>		<i>Nectria ditissima</i>	
<i>Stereum sanguinolentum</i>		<i>Polyporus gilvus</i>	
Ailanthus altissima (Mill.) Swingle		<i>Ravenelia sessilis</i>	
ailanthus (tree-of-heaven)		<i>Sphaerophragmium acaciae</i>	
<i>Ascochyta ailanthi</i>		<i>Uredo ngamboensis</i>	
<i>Cercospora ailanthi</i>		Albizia moluccana Miq.	Molucca albizia
<i>C. glandulosa</i>		<i>Armillaria mellea</i>	
<i>Nectria cinnabarina</i>		<i>Cercospora theae</i>	
<i>Phyllactinia guttata</i>		<i>Ganoderma lucidum</i>	
<i>Verticillium albo-atrum</i>		<i>G. pseudoferreum</i>	
<i>V. dahliae</i>		<i>Macrophomina phaseoli</i>	
Alangium platanifolium (Sieb. & Zucc.)		<i>Physalospora rhodina</i>	
Harms	planeleaf alangium	<i>Thyridaria tarda</i>	
<i>Phyllactinia guttata</i>		Albizia montana Benth.	_____
Alangium salviifolium (L. f.) Wangerin		<i>Uromycladium tepperianum</i>	
	Angola alangium	Albizia procera (Roxb.) Benth.	
<i>Asterina balii</i>		tall albizia	
Albizia acle (Blanco) Merr.	acle albizia	<i>Fusarium solani</i> f. <i>albizziae</i>	
<i>Ganoderma lucidum</i>		<i>Ganoderma lucidum</i>	
<i>Sphaerophragmium luzonicum</i>		<i>Polyporus gilvus</i>	
Albizia amara (Roxb.) Boiv.	_____	<i>Sphaerophragmium acaciae</i>	
<i>Ganoderma lucidum</i>			

Albizia procera (Roxb.) Benth.	Aleurites montana (Lour.) E. H. Wils.
(Continued)	
<i>S. luzonicum</i>	mu-oil-tree
<i>Uredo albizziae</i>	<i>Pseudomonas aleuritidis</i>
Albizia saponaria?	<i>Armillaria mellea</i>
<i>Sphaerophragmium luzonicum</i>	<i>Botryosphaeria ribis</i>
Albizia stipulata (Roxb.) Bolv.	<i>Colletotrichum gloeosporioides</i>
<i>Macrophomina phaseoli</i>	<i>Fomes lamaoensis</i>
Albizia sumatrana v. Steenis	<i>F. lignosus</i>
<i>Physalospora rhodina</i>	<i>Fusarium lateritium</i>
Albizia versicolor Welw.	<i>Ganoderma pseudoferreum</i>
<i>Spumula bottomleyae</i>	<i>Mycosphaerella websteri</i>
Alchornea sp.	<i>Pellicularia filamentosa</i>
<i>Meliola alchorneae</i>	<i>P. rolfsii</i>
Alchornea cordata Muell.-Arg.	<i>Pestalotia dictyochaeta</i>
cordate Christmas-bush	<i>Phyllosticta microspora</i>
<i>Irene alchorneae</i>	<i>Physalospora rhodina</i>
Alchornea cordifolia Muell.-Arg.	<i>Phytophthora cactorum</i>
heartleaf Christmas-bush	<i>Poria hypolateritia</i>
<i>Angiopsora hansfordii</i>	<i>Sphaerostilbe repens</i>
<i>Armillaria mellea</i>	<i>Ustilina deusta</i>
<i>Asterina alchorneae</i>	Alhagi pseudalhagi (Bleb.) Desv.
<i>Skierka congolensis</i>	camelthorn
Alchornea iricurana Casar.	<i>Cercospora alhagi</i>
<i>Olivea capituliformis</i>	Alibertia sp.
<i>Uredo alchorneae</i>	<i>Aecidium alibertiae</i>
Alchornea latifolia Sw.	Allamanda cathartica L.
<i>Olivea capituliformis</i>	common allamanda
Alchornea pycnogynae Muell.-Arg.	Virus, mosaic
<i>Olivea capituliformis</i>	Allophylus sp.
Alchornea rugosa Muell.-Arg.	<i>Cercospora allophylti</i>
<i>Aecidium alchorneae</i>	Allophylus timorensis (DC.) Blume
<i>Colletotrichum gloeosporioides</i>	<i>Cercospora allophylti</i>
Alchornea triplinervia (Spreng.)	Alnus sp.
Muell.-Arg.	alder
<i>Uredo alchorneae</i>	<i>Armillaria mellea</i>
Aleurites sp.	<i>Corticium comedens</i>
<i>Pseudomonas solanacearum</i>	<i>C. galactinum</i>
<i>Colletotrichum gloeosporioides</i>	<i>Daedalea unicolor</i>
Aleurites fordii Hemsl.	<i>Fomes conchatus</i>
tung-oil tree	<i>F. fomentarius</i>
<i>Pseudomonas aleuritidis</i>	<i>F. pinicola</i>
<i>Armillaria mellea</i>	<i>Ganoderma applanatum</i>
<i>Colletotrichum gloeosporioides</i>	<i>Hericium erinaceus</i>
<i>Glomerella cingulata</i>	<i>Nectria ditissima</i>
<i>Pestalotia dictyochaeta</i>	<i>N. galligena</i>
<i>Phyllosticta aleuritidis</i>	<i>Phyllosticta alnigena</i>
<i>P. microspora</i>	<i>Pleurotus salignus</i>
<i>Physalospora rhodina</i>	<i>Polyporus sulphureus</i>
<i>Phytophthora palmivora</i>	<i>Poria obliqua</i>
<i>Ustilina deusta</i>	<i>P. prunicola</i>
Aleurites moluccana Willd.	<i>Taphrina amentorum</i>
candlenut-tree	Alnus acuminata H. B. K.
<i>Botryosphaeria ribis</i> var. <i>chromogena</i>	<i>Melampsorium hiratsukanum</i>
<i>Ganoderma lucidum</i>	Alnus arguta Benth.
<i>Lophodermium aleuritidis</i>	<i>Melampsorium hiratsukanum</i>

<i>Alnus borealis</i> Koidz. var. <i>Koreana</i> Nakai	_____	<i>Ciboria alni</i>	
<i>Taphrina japonica</i>		<i>Cryptospora suffusa</i>	
<i>Alnus cordata</i> Desf.	Italian alder	<i>Fomes annosus</i>	
<i>Gnomoniella tubiformis</i>		<i>F. fomentarius</i>	
<i>Alnus cremastogyne</i> Burk.	_____	<i>F. igniarius</i>	
<i>Melampsoridium hiratsukanum</i>		<i>Gnomoniella tubiformis</i>	
<i>Phyllactinia frazini</i>		<i>Melampsoridium alni</i>	
<i>P. guttata</i>		<i>Microsphaera alni</i>	
<i>Alnus formosana</i> (Burk.) Makino	_____	<i>Phyllactinia guttata</i>	
<i>Ganoderma applanatum</i>		<i>Taphrina amentorum</i>	
<i>Phyllactinia guttata</i>		<i>T. epiphylla</i>	
<i>Alnus fruticosa</i> Rupr.	Manchu alder	<i>T. tosquinetii</i>	
<i>Fomes igniarius</i>		<i>Uncinula miyabei</i>	
<i>Melampsoridium alni</i>		<i>Alnus japonica</i> (Thunb.) Steud.	
<i>Alnus glutinosa</i> (L.) Gaertn.	European alder		Japanese alder
<i>Armillaria mellea</i>		<i>Fomes igniarius</i>	
<i>Ciboria alni</i>		<i>Phyllactinia frazini</i>	
<i>Cryptospora suffusa</i>		<i>P. guttata</i>	
<i>Cytospora ambiens</i>		<i>Polyporus sulphureus</i>	
<i>Fomes annosus</i>		<i>Taphrina japonica</i>	
<i>F. connatus</i>		<i>Uncinula miyabei</i>	
<i>F. fomentarius</i>		<i>Alnus jorullensis</i> H. B. K.	_____
<i>F. igniarius</i>		<i>Melampsoridium hiratsukanum</i>	
<i>Gnomoniella tubiformis</i>		<i>Alnus jorullensis</i> var. <i>mirbelii</i> (Spach)	
<i>Melampsoridium alni</i>		Winkl.	_____
<i>Microsphaera alni</i>		<i>Melampsoridium hiratsukanum</i>	
<i>Nectria coccinea</i>		<i>Alnus maritima</i> (Marsh.) Muhl.	
<i>N. ditissima</i>			seaside alder
<i>Phyllactinia guttata</i>		<i>Phyllactinia guttata</i>	
<i>Phyllosticta alnea</i>		<i>Uncinula miyabei</i>	
<i>P. alniperda</i>		<i>Alnus maximowiczii</i> Call.	_____
<i>Septoria alnicola</i>		<i>Melampsoridium hiratsukanum</i>	
<i>Taphrina amentorum</i>		<i>Alnus nepalensis</i> D. Don	Nepal alder
<i>T. sadebeckii</i>		<i>Phyllactinia guttata</i>	
<i>T. tosquinetii</i>		<i>Alnus pendula</i> Matsum.	nodding alder
<i>Valsa oxystoma</i>		<i>Melampsoridium hiratsukanum</i>	
<i>Alnus glutinosa</i> f. <i>laciniata</i> Koehne		<i>Septoria alni</i>	
	cutleaf European alder	<i>Alnus rubra</i> Bong.	red alder
<i>Taphrina sadebeckii</i>		<i>Valsa oxystoma</i>	
<i>Alnus hirsuta</i> (Spach) Rupr.		<i>Alnus sinuata</i> (Reg.) Rydb.	Sitka alder
	Manchurian alder	<i>Melampsoridium hiratsukanum</i>	
<i>Melampsoridium hiratsukanum</i>		<i>Alnus subcordata</i> C. A. Mey.	
<i>Taphrina amentorum</i>			Caucasian alder
<i>T. epiphylla</i>		<i>Cercoseptoria esfandiarii</i>	
<i>T. sadebeckii</i>		<i>Alnus viridis</i> DC.	
<i>Uncinula miyabei</i>			European green alder
<i>Alnus ×hybrida</i> A. Br.	_____	<i>Hysterographium frazini</i>	
<i>Taphrina amentorum</i>		<i>Melampsoridium alni</i>	
<i>T. tosquinetii</i>		<i>M. hiratsukanum</i>	
<i>Alnus incana</i> (L.) Moench	_____	<i>Valsa oxystoma</i>	
<i>Armillaria mellea</i>		<i>Alphonsea arborea</i> (Blanco) Merr.	_____
		<i>Fomes annularis</i>	

<i>Alstonia scholaris</i> R. Br.	palimara alstonia	<i>Antidesma heterophyllum</i> Blume	_____
<i>Colletotrichum gloeosporioides</i>		<i>Elsinoë antidesmae</i>	_____
<i>Meliola alstoniae</i>		<i>Antidesma venosum</i> E. Mey.	_____
<i>Aitingia excelsa</i> Noronna	rasamala altingia	<i>Crossospora antidesmae-dioicae</i>	_____
<i>Fomes lignosus</i>		<i>Aphananthe aspera</i> (Blume) Planch.	_____
<i>Pellicularia filamentosa</i>		<i>Helicobasidium mompa</i>	_____
<i>Amelanchier</i> sp.	serviceberry	<i>Uncinula clintonii</i>	_____
<i>Coleopuccinia sinensis</i>		<i>U. polychaeta</i>	_____
<i>Amelanchier asiatica</i> (Sieb. & Zucc.)		<i>Aquilaria agallocha</i> Roxb.	_____
Endl.	Asian serviceberry	agalloch eaglewood	_____
<i>Gymnosporangium amelanchieris</i>		<i>Epicoccum granulatum</i>	_____
<i>G. idetae</i>		<i>Aralia spinosa</i> L.	devils-walkingstick
<i>Phyllactinia guttata</i>		<i>Helicobasidium mompa</i>	_____
<i>Amelanchier nervosa</i> (Decne.) Standl.	_____	<i>Araucaria</i> sp.	_____
<i>Roestelia guatemaliana</i>		<i>Pestalotia micheneri</i>	_____
<i>Amelanchier ovalis</i> Med.		<i>Araucaria angustifolia</i> (Bert.) Kuntze	_____
garden serviceberry		Parana-pine	_____
<i>Gymnosporangium amelanchieris</i>		<i>Armillaria mellea</i>	_____
<i>Lophodermium hysteroideis</i>		<i>Phyllosticta brasiliensis</i>	_____
<i>Amherstia nobilis</i> Wall.		<i>Phytophthora citrophthora</i>	_____
flame amherstia		<i>Araucaria araucana</i> (Molina) K. Koch	_____
<i>Macrophomina phaseoli</i>		monkey-puzzle	_____
<i>Anacardium</i> sp.	cashew	<i>Armillaria mellea</i>	_____
<i>Asterina carbonacea</i>		<i>Botryosphaeria ribis</i>	_____
<i>Anacardium excelsum</i> (Bert. & Balb.)		<i>Caeoma sanctae-crucis</i>	_____
Skeels	espavé	<i>Cryptosporella araucariae</i>	_____
<i>Cercospora rhinocarpi</i>		<i>Didymella araucariae</i>	_____
<i>Anacardium occidentale</i> L.	cashew	<i>Fusicoccum araucariae</i>	_____
<i>Pseudomonas magniferae-indicae</i>		<i>Uleiella paradoxa</i>	_____
<i>Ganoderma lucidum</i>		<i>Araucaria cunninghamii</i> Sweet	_____
<i>Andira inermis</i> (W. Wright) H. B. K.		Moreton-Bay-pine	_____
cabbage angelin		<i>Armillaria mellea</i>	_____
<i>Cercospora stevensii</i>		<i>Botryosphaeria ribis</i>	_____
<i>Mycena citricolor</i>		<i>Diplodia pinea</i>	_____
<i>Polystigma pusillum</i>		<i>Helicobasidium purpureum</i>	_____
<i>Andira pisonis</i> Mart.	_____	<i>Hymenochaete mougeotii</i>	_____
<i>Ravenelia goyazensis</i>		<i>Physalospora rhodina</i>	_____
<i>Angophora lanceolata</i> Cav.		<i>Araucaria excelsa</i> R. Br.	_____
rusty gum-myrtle		Norfolk- Island-pine	_____
<i>Fomes robustus</i>		<i>Phytophthora parasitica</i>	_____
<i>Ganoderma applanatum</i>		<i>Araucaria rulei</i> F. Muell.	_____
<i>Anogeissus latifolia</i> Wall.		<i>Botryosphaeria dothidea</i>	_____
bakligum axlewood		<i>Arbutus andrachne</i> L.	_____
<i>Corticium repens</i>		<i>Fomes ribis</i>	_____
<i>Fomes caryophylli</i>		<i>Arbutus longifolia</i> Andr.	_____
<i>F. robiniae</i>		<i>Cercospora molleriana</i>	_____
<i>Antidesma</i> sp.	China-laurel	<i>Arbutus menziesii</i> Pursh	_____
<i>Fomes conchatus</i>		<i>Pucciniastrum sparsum</i>	_____
<i>Antidesma ghesaembilla</i> Gaertn.	_____	<i>Arbutus unedo</i> L.	strawberry madrone
<i>Crossospora antidesmae-dioicae</i>		<i>Cercospora molleriana</i>	_____
		<i>Coryneum microstictum</i>	_____
		<i>Elsinoë mattirolanum</i>	_____

Arbutus unedo L. strawberry madrone (Continued)	Artocarpus heterophyllus Lam. jackfruit
<i>Exobasidium unedonis</i>	<i>Corticium salmonicolor</i>
<i>Fomes conchatus</i>	<i>Fomes annularis</i>
<i>F. torulosus</i>	<i>F. lamaoensis</i>
<i>Ganoderma applanatum</i>	<i>F. lignosus</i>
<i>Phyllosticta arbuti</i>	<i>Ganoderma applanatum</i>
<i>Septoria unedonis</i>	<i>Pellicularia rolfsii</i>
<i>Sphaceloma mattirolanum</i>	<i>Phyllostictina artocarpina</i>
Arbutus xalapensis H. B. K. Mexican madrone	<i>Phytophthora palmivora</i>
<i>Pucciniastrum sparsum</i>	<i>Polyporus zonalis</i>
Archontophoenix alexandrae (F. Muell.) H. Wendl. & Drude Alexandra kingpalm	<i>Rosellinia bunodes</i>
<i>Phytophthora palmivora</i>	<i>Uredo artocarp</i>
Areca sp. ———	Aspidosperma guaraniticum Malme white quebracho
<i>Gliocladium vermoesentii</i>	<i>Actinothecium guaraniticum</i>
Areca cathecua L. betel-nut-palm	Astronium graveolens Jacq. ———
<i>Xanthomonas vasculorum</i>	<i>Uredo rhombica</i>
<i>Ceratocystis paradoxa</i>	Bambusa arundinacea Retz. ———
<i>Fomes lamaoensis</i>	<i>Ganoderma lucidum</i>
<i>Ganoderma lucidum</i>	<i>Puccinia longicornis</i>
<i>Macrophomina phaseoli</i>	<i>Uredo ignava</i>
<i>Pellicularia koleroga</i>	Bambusa vulgaris Schrad. common bamboo
<i>Pestalotia palmarum</i>	<i>Tomentella bambusina</i>
<i>Phytophthora palmivora</i>	<i>Uredo ignava</i>
<i>Ustilina deusta</i>	Banksia sp. ———
Arecastrum romanzoffianum (Cham.) Becc. queen-palm	<i>Fomes robustus</i>
<i>Catacauma mucosum</i>	Banksia integrifolia L. entireleaf banksia
Arenga ambong Becc. Philippine sugar-palm	<i>Trametes ochroleuca</i>
<i>Graphiola arengae</i>	Barringtonia acutangula Gaertn. chee barringtonia
Arenga pinnata (Wurmb.) Merr. gomuti sugar-palm	<i>Cercospora barringtoniae</i>
<i>Ganoderma pseudoferreum</i>	<i>Meliola indica</i>
Arthrostylidium racemiflorum Steud. ———	Barringtonia luzoniensis Vidal ———
<i>Ciliochorella bambusarum</i>	<i>Cercospora barringtoniae</i>
<i>Lateropeltis bambusarum</i>	Barringtonia racemosa Roxb. ———
Artocarpus altilis (Parkinson) Fosberg breadfruit	<i>Phyllosticta microstegia</i>
<i>Cercospora artocarp</i>	Barringtonia speciosa Forst. India barringtonia
<i>Fomes lignosus</i>	<i>Pellicularia rolfsii</i>
<i>Phytophthora palmivora</i>	Bassia decurrens J. M. Black ———
<i>Polyporus zonalis</i>	<i>Puccinia bassiae</i>
<i>Uredo artocarp</i>	Bassia obliquicuspis R. H. Anders. ———
Artocarpus blancoi (Elm.) Merr. ———	<i>Puccinia bassiae</i>
<i>Cercospora artocarp</i>	Bassia paradoxa (R. Br.) F. Muell. ———
	<i>Puccinia bassiae</i>
	Bassia uniflora (R. Br.) F. Muell. ———
	<i>Puccinia bassiae</i>

Bauhinia sp.	————	<i>Melampsoridium betulinum</i>	
<i>Armillaria mellea</i>		<i>Melanconis stilbostoma</i>	
<i>Phyllosticta bauhinicola</i>		<i>Mycosphaerella maculiformis</i>	
Bauhinia candicans Benth.	————	<i>Myxosporium devastans</i>	
<i>Phytophthora citrophthora</i>		<i>Nectria ditissima</i>	
Bauhinia cumanensis H. B. K.	————	<i>N. galligena</i>	
<i>Phyllachora panamensis</i>		<i>Pholiota destruens</i>	
Bauhinia divaricata L.	————	<i>Phyllosticta betulina</i>	
<i>Ramularia bauhiniae</i>		<i>Phytophthora cactorum</i>	
Bauhinia heterophylla Kunth.	————	<i>Polyporus cuticularis</i>	
<i>Scopella bauhinicola</i>		<i>P. squamosus</i>	
Bauhinia malabarica Roxb.	————	<i>P. sulphureus</i>	
<i>Cercospora bauhiniae</i>		<i>P. zonatus</i>	
<i>Corticium repens</i>		<i>Poria obliqua</i>	
Bauhinia pringlei S. Wats.	————	<i>Rosellinia aquila</i>	
<i>Uromyces bauhinicola</i>		<i>Steccherinum septentrionale</i>	
Bauhinia purpurea L. purple bauhinia		<i>Stereum purpureum</i>	
<i>Phyllosticta bauhiniae</i>		Betula albo-sinensis Burk.	
Bauhinia reticulata DC.	————	China paper birch	
<i>Cercospora bauhiniae</i>		<i>Fomes igniarius</i>	
Bauhinia rubiginosa Bong.	————	Betula $\times$ aurata Borkh.	————
<i>Scopella bauhinicola</i>		<i>Taphrina betulina</i>	
Bauhinia variegata L. var. candida		Betula celtiberica Rothm. & Carv.	
Buch.-Ham.		Vasc.	
greenvein Buddhist bauhinia		<i>Melampsoridium betulinum</i>	
<i>Pellicularia rolfsii</i>		Betula costata Trautv.	————
Berrya cardifolia (Willd.) Burret		<i>Fomes igniarius</i>	
trincomali-wood		<i>Poria obliqua</i>	
<i>Pellicularia rolfsii</i>		Betula davurica Pall.	
Bertholletia excelsa Humb. & Bonpl.		Dahurian birch	
Brazilnut		<i>Daedalea unicolor</i>	
<i>Elsinoë bertholletiae</i>		<i>Trametes gibbosa</i>	
Betula sp.	birch	Betula ermanii Cham.	Erman birch
Virus, mosaic		<i>Melampsoridium betulinum</i>	
<i>Armillaria mellea</i>		<i>Taphrina betulicola</i>	
<i>Asteroma betulae</i>		Betula ermanii var. communis Reg.	————
<i>Ciboria betulae</i>		<i>Fomes igniarius</i> var. <i>laevigatus</i>	
<i>Coniophora puteana</i>		<i>Melampsoridium betulinum</i>	
<i>Coniothyrium betulae</i>		<i>Poria obliqua</i>	
<i>Daedalea unicolor</i>		Betula ermanii var. subcordata (Reg.)	————
<i>Daldinia concentrica</i>		Koidz.	
<i>Diaporthe aristata</i>		<i>Ciboria betulae</i>	
<i>Fomes annosus</i>		Betula fruticosa Pall.	Altai birch
<i>F. connatus</i>		<i>Melampsoridium betulinum</i>	
<i>F. fomentarius</i>		Betula grossa Sieb. & Zucc.	
<i>F. igniarius</i>		Japanese cherry birch	
<i>F. igniarius</i> var. <i>laevigatus</i>		<i>Poria obliqua</i>	
<i>F. pini</i>		Betula humilis Schrank	————
<i>F. pinicola</i>		<i>Taphrina carnea</i>	
<i>Guignardia betulae</i>		Betula $\times$ intermedia Thomas	————
<i>Hydnum cirrhatum</i>		<i>Taphrina betulae</i>	
<i>Hysterographium fragini</i>		<i>T. betulina</i>	
<i>Marssonina betulae</i>		<i>T. carnea</i>	

Betula lenta L.	sweet birch	Betula platyphylla var. <i>japonica</i> (Miq.)	
<i>Melampsoridium betulinum</i>		Hara	Japanese white birch
Betula maximowicziana Reg.		<i>Ciboria betulae</i>	
	monarch birch	<i>Melampsoridium betulinum</i>	
<i>Fomes igniarius</i> var. <i>laevigatus</i>		Betula pubescens Ehrh.	—
<i>Melampsoridium betulinum</i>		<i>Armillaria mellea</i>	
<i>Poria obliqua</i>		<i>Ciboria betulae</i>	
Betula medwediewii Reg.	—	<i>Daedalea unicolor</i>	
<i>Taphrina betulae</i>		<i>Discula betulina</i>	
Betula nana L.	dwarf arctic birch	<i>Fomes annosus</i>	
<i>Melampsoridium betulinum</i>		<i>F. connatus</i>	
<i>Taphrina bacteriosperma</i>		<i>F. igniarius</i>	
<i>T. betulina</i>		<i>F. igniarius</i> var. <i>laevigatus</i>	
<i>T. carnea</i>		<i>Melampsoridium betulinum</i>	
<i>T. nana</i>		<i>Microsphaera alni</i>	
Betula nigra L.	river birch	<i>Nectria ditissima</i>	
<i>Taphrina betulina</i>		<i>N. galligena</i>	
Betula papyrifera Marsh.	paper birch	<i>Phyllactinia guttata</i>	
<i>Ciboria betulae</i>		<i>Poria obliqua</i>	
Betula pendula Roth		<i>Taphrina bacteriosperma</i>	
	European white birch	<i>T. betulae</i>	
<i>Ceratocystis piceae</i>		<i>T. betulina</i>	
<i>Ciboria betulae</i>		<i>T. carnea</i>	
<i>Cytospora ambiens</i>		<i>T. nana</i>	
<i>Daedalea unicolor</i>		<i>T. splendens</i>	
<i>Discula betulina</i>		<i>Venturia ditricha</i>	
<i>Fomes annosus</i>		Betula pubescens var. <i>carpatica</i> Koch	—
<i>F. connatus</i>		<i>Taphrina betulina</i>	
<i>F. igniarius</i>		Betula pubescens f. <i>urticifolia</i> Schelle	—
<i>Ganoderma applanatum</i>		<i>Taphrina betulina</i>	
<i>Irpex hirsutus</i>		Betula rotundifolia Spach	
<i>Marssonina betulae</i>			ground birch
<i>Melampsoridium betulinum</i>		<i>Septoria betulina</i>	
<i>Microsphaera alni</i>		Betula turkestanica Litvin.	
<i>Myxosporium devastans</i>			Turkestan birch
<i>Phyllactinia guttata</i>		<i>Taphrina betulae</i>	
<i>Phytophthora cinnamomi</i>		Bischofia javanica Blume	
<i>Poria obliqua</i>			Java bishopwood
<i>Septoria betulina</i>		<i>Cercospora bischofiae</i>	
<i>Stereum purpureum</i>		<i>Colletotrichum gloeosporioides</i>	
<i>Taphrina betulae</i>		<i>Fomes lamaoensis</i>	
<i>T. betulina</i>		Bixa orellana L.	anatto
<i>T. carnea</i>		<i>Corticium salmonicolor</i>	
<i>T. nana</i>		<i>Fomes lignosus</i>	
<i>Trametes gibbosa</i>		<i>Macrophomina phaseoli</i>	
<i>Venturia ditricha</i>		<i>Phyllosticta bixina</i>	
<i>Volvaria bombycinus</i>		<i>Rhizoctonia lamellifera</i>	
Betula platyphylla Suk.		<i>Rosellinia bunodes</i>	
	Asian white birch	<i>Uredo bixae</i>	
<i>Ganoderma applanatum</i>			
<i>Melampsoridium betulinum</i>			

Blakea sp. ———	Breynia sp. ———
<i>Bagnisiopsis tijucensis</i>	<i>Aecidium breyniae</i>
Blighia sapida Koenig akee	Breynia acuminata Muell.-Arg. ———
<i>Armillaria mellea</i>	<i>Asterina breyniaecola</i>
Bombax sp. ———	Breynia rhamnoides Muell.-Arg. ———
<i>Puccinia bombacis</i>	
Bombax buonopozense Beauv. ———	<i>Aecidium breyniae</i>
Virus, swollen shoot	<i>Masseella breyniae</i>
<i>Calonectria rigidiuscula</i>	Bridelia micrantha Baill. ———
Bombax malabaricum DC.	<i>Aecidium brideliae-micranthae</i>
Malabar simal-tree	Bridelia monoica (Lour.) Merr.
<i>Cercospora bombacina</i>	pikpoksai bridelia
<i>Chrysomyxa bombacis</i>	<i>Cercospora atrides</i>
<i>Corticium salmonicolor</i>	Bridelia tomentosa Blume ———
<i>Fomes lamaoensis</i>	<i>Bubakia cingens</i>
<i>Uredo bombacis</i>	Broussonetia sp. ———
Bombax munguba Mart. ———	<i>Cercospora broussonetiae</i>
<i>Fomes lignosus</i>	Broussonetia kazinoki Sieb. & Zucc.
<i>Polyporus zonalis</i>	kazinoki paper-mulberry
Borassus flabellifer L. Palmyra palm	<i>Aecidium mori</i>
<i>Ceratocystis paradoxa</i>	<i>Helicobasidium mompa</i>
<i>Graphiola borassi</i>	<i>H. tanakae</i>
<i>Macrophomina phaseoli</i>	<i>Phyllactinia guttata</i>
<i>Pestalotia palmarum</i>	Broussonetia papyrifera (L.) Vent.
<i>Phytophthora palmivora</i>	paper-mulberry
<i>Septoria cocoes</i>	Virus, mosaic
Bossiaea cinerea R. Br. ———	<i>Cerotelium fici</i>
<i>Cronartium jacksoniae</i>	<i>Fomes fraxineus</i>
Boswellia serrata Roxb.	<i>Helicobasidium mompa</i>
India frankincense	<i>Phyllactinia guttata</i>
<i>Dasturella boswelliae</i>	Buchanania sp. ———
<i>Fomes fastuosus</i>	<i>Corticium salmonicolor</i>
<i>F. robiniae</i>	Buchanania latifolia Roxb. ———
<i>F. senex</i>	<i>Corticium repens</i>
<i>Hexagonia sulcata</i>	Buettneria carthaginensis Jacq. ———
<i>Trametes incerta</i>	
Bougainvillea glabra Choisy	<i>Puccinia filopes</i>
lesser bougainvillea	Buettneria lateralis Presl ———
<i>Fusarium oxysporum</i>	<i>Puccinia filopes</i>
Bougainvillea spectabilis Willd.	Buettneria ramosissima Pohl ———
Brazil bougainvillea	<i>Meliola buettneriae</i>
Virus, mosaic	Bunchosia glandulifera (Jacq.) ———
<i>Armillaria mellea</i>	H. B. K.
Brachychiton acerifolium (Cunn.) F.	<i>Cercospora bunchosiae</i>
Muell. flame bottle-tree	Butea monosperma (Lam.) Kuntze
<i>Phytophthora citrophthora</i>	Bengal kino
Brachychiton populneum (Don) R. Br.	<i>Corticium salmonicolor</i>
kurajong bottle-tree	Butyrospermum parkii (G. Don)
<i>Pellicularia rolfsii</i>	Kotschy Shea butterseed
<i>Phytophthora cactorum</i>	<i>Fusicladium butyrospermi</i>
<i>P. citrophthora</i>	Buxus sp. box
<i>P. palmivora</i>	<i>Hyponectria buxi</i>
<i>P. parasitica</i>	

Buxus sempervirens L.	common box	Calliandra similis Sprague & Riley	
<i>Fomes robustus</i>		<i>Camptomeris calliandrae</i>	
<i>F. torulosus</i>		Callitris sp.	cypress-pine
<i>Ganoderma applanatum</i>		<i>Armillaria mellea</i>	
<i>Guignardia buxi</i>		Callitris propinqua R. Br.	
<i>Hyponectria buxi</i>		<i>Fomes robustus</i>	
<i>Phyllosticta burina</i>		Calodendrum sp.	
<i>Uromyces ambiens</i>		<i>Armillaria mellea</i>	
<i>Volutella buxi</i>		Calophyllum sp.	
Byrsonima sp.		<i>Fomes lignosus</i>	
<i>Aecidium byrsonimatis</i>		<i>Polyporus zonalis</i>	
<i>Cercospora byrsonimatis</i>		Calophyllum brasiliense Camb. var.	
<i>Meliola byrsonimicola</i>		rekoi (Standl.) Standl.	
Byrsonima coccolobaefolia H. B. K.		<i>Haplographium calophylli</i>	
<i>Cronartium byrsonimatis</i>		Calophyllum inophyllum L.	kamani
<i>Sphaeceloma lagoa-santensis</i>		<i>Helicobasidium mompa</i>	
Byrsonima crassifolia (L.) H. B. K.		Calophyllum tacamahaca Willd.	
<i>Aecidium byrsonimatis</i>		<i>Botryosphaeria ribis</i>	
<i>Crossospora notata</i>		<i>Haplographium calophylli</i>	
Byrsonima intermedia Juss.		Calycophyllum spruceanum (Benth.)	
<i>Aecidium vinnulum</i>		K. Schum. mulatto calycophyllum	
<i>Crossospora notata</i>		<i>Fomes lignosus</i>	
Byrsonima verbascifolia Rich.		<i>Polyporus zonalis</i>	
<i>Aecidium byrsonimatis</i>		Cananga odorata (Lam.) Hook. f. &	
Calliandra sp.		Thoms. ylang-ylang	
<i>Ravenelia armata</i>		<i>Pellicularia rolfsii</i>	
Calliandra bijuga Rose		Canarium album Raeusch.	
<i>Spumula quadrifida</i>		<i>Glomerella cingulata</i>	
Calliandra caracasana (Jacq.) Benth.		Canarium commune L.	
<i>Ravenelia echinata</i>		Java-almond canary-tree	
Calliandra chapaderoana (Britton &		<i>Skierka canarii</i>	
Rose) Standl.		Canarium laciniatum Elm.	
<i>Ravenelia ectypa</i>		<i>Phyllachora canarii</i>	
Calliandra falcata Benth.		Canarium luzonicum Miq.	
<i>Ravenelia lagerheimiana</i>		elemi canary-tree	
Calliandra gracilis Klotzsch		<i>Phyllachora canarii</i>	
<i>Ravenelia ectypa</i>		<i>Skierka philippinensis</i>	
Calliandra grandiflora (L'Hér.) Benth.		Canarium moluccanum Blume	
<i>Ravenelia mexicana</i>		<i>Skierka canarii</i>	
Calliandra houstoniana Benth.		Canarium ovatum Engl.	
panbotano calliandra		<i>Fomes annularis</i>	
<i>Ravenelia bizonata</i>		Canarium perkinsiae Merr.	
Calliandra laxa (Willd.) Benth.		<i>Phyllachora canarii</i>	
<i>Ravenelia ectypa</i>		Canarium villosum (Blume) F. Vill.	
Calliandra longipes Benth.		<i>Anthomycetella canarii</i>	
<i>Uredo longipedis</i>		<i>Phyllachora canarii</i>	
Calliandra macrocephala Benth.		<i>Skierka canarii</i>	
<i>Ravenelia dieteliana</i>		Canthium sp.	
		<i>Aecidium incomparabile</i>	
		Canthium arnoldiana Wildem. & Th.	
		Dur.	
		<i>Aecidium incomparabile</i>	

Canthium coprosmoides F. Muell.		<i>N. galligena</i>	
<i>Aecidium baileyannum</i>		<i>Pezicula carpineae</i>	
<i>A. plectroniae</i>		<i>Phyllactinia guttata</i>	
Canthium gynochthodes Baill.		<i>Pleurotus dryinus</i>	
<i>Hemileia canthii</i>		<i>Taphrina carpini</i>	
Canthium horridum Blume		Carpinus cordata Blume	heartleaf hornbeam
<i>Hemileia canthii</i>		<i>Daedalea unicolor</i>	
Canthium parviflorum Lam.		<i>Fomes igniarius</i>	
little-flower canthium		Carpinus erosa Blume	
<i>Hemileia canthii</i>		<i>Gnomoniella fimbriata</i>	
<i>Pellicularia koleroga</i>		Carpinus laxiflora Blume	looseflower hornbeam
Canthium pedunculare Cav.		<i>Melampsorium carpini</i>	
<i>Hemileia canthii</i>		Carpinus orientalis Mill.	oriental hornbeam
Canthium rheedii DC.		<i>Taphrina carpini</i>	
<i>Hemileia canthii</i>		Carpinus tschonoskii Maxim.	Yeddo hornbeam
Canthium schimperianum A. Rich.		<i>Melampsorium carpini</i>	
<i>Dimerium autranti</i>		Carya sp.	
Canthium vulgare (K. Schum.) Bullock		<i>Gnomonia leptostyla</i>	
<i>Aecidium hansfordii</i>		Carya illinoensis (Wangenh.) K. Koch	pecan
Carapa guianensis Aubl.	Guiana crabwood	<i>Cercospora caryae</i>	
<i>Fomes lignosus</i>		<i>C. fusca</i>	
<i>Polyporus zonatis</i>		Caryota sp.	fish-tail-palm
Careya arborea Roxb.	Kumbi careya	<i>Auerswaldia copelandii</i>	
<i>Cercospora careyae</i>		<i>Phyllosticta cocos</i>	
Cariniana estrellensis (Raddi) Kuntze		Casearia aculeata Jacq.	
<i>Cercospora couratariiae</i>		<i>Meliola paulliniae</i>	
Carpinus sp.	hornbeam	Casearia arborea (L. C. Rich.) Urban	
<i>Daedalea unicolor</i>		<i>Meliola paulliniae</i>	
<i>Fistulina hepatica</i>		Casearia guianensis (Aubl.) Urban	
<i>Fomes fomentarius</i>		<i>Cercospora caseariae</i>	
<i>F. igniarius</i>		<i>C. ciferii</i>	
<i>Ganoderma lucidum</i>		<i>Meliola paulliniae</i>	
<i>Gnomoniella fimbriata</i>		Casearia sylvestris Sw.	
<i>Hericium erinaceus</i>		<i>Dothiorella caseariae</i>	
<i>Melampsorium carpini</i>		<i>Meliola paulliniae</i>	
<i>Nectria ditissima</i>		Casearia tomentosa Roxb.	
<i>N. galligena</i>		<i>Cercospora caseariae</i>	
<i>Polyporus cuticularis</i>		Castanea sp.	chestnut
<i>Ustulina deusta</i>		<i>Pseudomonas castaneae</i>	
Carpinus betulus L.	European hornbeam	<i>Armillaria mellea</i>	
<i>Armillaria mellea</i>		<i>Bagchea castanea</i>	
<i>Fomes fomentarius</i>		<i>Daedalea unicolor</i>	
<i>F. igniarius</i>		<i>Endothia fluens</i>	
<i>Gnomoniella fimbriata</i>		<i>E. parasitica</i>	
<i>Melampsorium carpini</i>		<i>Fistulina hepatica</i>	
<i>Monostichella robergei</i>		<i>Fomes robustus</i>	
<i>Nectria cinnabarina</i>		<i>Ganoderma applanatum</i>	
<i>N. ditissima</i>			

Castanea sp.	Chestnut	<i>Endothia gyrosa</i>
(Continued)		<i>E. parasitica</i>
<i>Mycosphaerella maculiformis</i>		<i>Fistulina hepatica</i>
<i>Nummularia regia</i>		<i>Fomes torulosus</i>
<i>Polyporus sulphureus</i>		<i>Ganoderma applanatum</i>
<i>Trametes dickinsii</i>		<i>G. lucidum</i>
Castanea crenata Sieb. & Zucc.		<i>Hypoxyylon mediterraneum</i>
Japanese chestnut		<i>Lophodermium punctiforme</i>
<i>Actinopelte japonica</i>		<i>Microsphaera alni</i>
<i>Cronartium quercuum</i>		<i>M. alni</i> var. <i>extensa</i>
<i>Cryptodiaporthe castanea</i>		<i>Mycosphaerella castanicola</i>
<i>Cytospora ambiens</i>		<i>M. maculiformis</i>
<i>Endothia gyrosa</i>		<i>Phytophthora cactorum</i>
<i>E. parasitica</i>		<i>P. cambivora</i>
<i>Helicobasidium mompa</i>		<i>P. cinnamomi</i>
<i>Microsphaera alni</i>		<i>P. syringae</i>
<i>Monochaetia desmazierii</i>		<i>Polyporus croceus</i>
<i>Phyllactinia guttata</i>		<i>P. dryadeus</i>
<i>Phytophthora cactorum</i>		<i>P. squamosus</i>
<i>P. cambivora</i>		<i>P. sulphureus</i>
<i>P. cinnamomi</i>		<i>Rhizina undulata</i>
<i>P. syringae</i>		<i>Rosellinia radiciperda</i>
<i>Pucciniastrum castaneae</i>		<i>Verticillium albo-atrum</i>
<i>Schizophyllum commune</i>		Castanopsis sp. ———
Castanea Xcoudercii A. Camus		<i>Pucciniastrum castaneae</i>
Couderc chestnut		Castanopsis argentea (Blume) A. DC. ———
<i>Phytophthora cambivora</i>		<i>Fomes korthalsii</i>
<i>P. cinnamomi</i>		Castanopsis concolor Rehd. & E. H. ———
Castanea dentata (Marsh.) Borkh.		Wils.
American chestnut		<i>Erysiphe polygoni</i>
<i>Cryptodiaporthe castanea</i>		Castanopsis cuspidata (Thunb.)
<i>Endothia gyrosa</i>		Schottky
<i>E. parasitica</i>		Japanese evergreen-chinkapin
Castanea henryi (Skan) Rehd. & E. H.		<i>Asterina pasaniae</i>
Wils.	Henry chinkapin	<i>Cronartium quercuum</i>
<i>Cronartium quercuum</i>		<i>Hericium erinaceus</i>
<i>Pucciniastrum castaneae</i>		<i>Taphrina kusanoi</i>
Castanea mollissima Blume		Castanopsis delavayi Franch. ———
Chinese chestnut		<i>Erysiphe polygoni</i>
<i>Cronartium quercuum</i>		Castanopsis javanica (Blume) A. DC. ———
<i>Endothia parasitica</i>		<i>Pucciniastrum castaneae</i>
<i>Microsphaera alni</i>		Castanopsis tibetana Hance ———
<i>Phyllactinia guttata</i>		<i>Irenina castanopsidis</i>
<i>Phytophthora cambivora</i>		<i>Meliola castanopsidis</i>
<i>Pucciniastrum castaneae</i>		Castilla costaricana Liebm.
<i>Uredo castaneae</i>		Costa Rica rubber
Castanea sativa Mill. ———		<i>Mycosphaerella castillae</i>
<i>Armillaria mellea</i>		Castilla elastica Cervantes
<i>Cercospora castaneae</i>		Central America rubber
<i>Ciborinia candolleana</i>		<i>Cercospora castilloae</i>
<i>Cryptodiaporthe castanea</i>		<i>Corticium salmonicolor</i>
<i>Cylindrosporium castaneae</i>		<i>Uredo artocarpi</i>
<i>Cytospora ambiens</i>		
<i>Daedalea unicolor</i>		

Casuarina sp.	casuarina	Cedrus atlantica Manetti	Atlas cedar
<i>Fomes conchatus</i>		<i>Fomes officinalis</i>	
Casuarina equisetifolia L.		<i>Lophodermium cedrinum</i>	
	horsetail casuarina	<i>Phacidiopycnis pseudotsugae</i>	
Virus, witches'-broom		Cedrus deodara (Roxb.) Loud.	Deodar cedar
<i>Pseudomonas solanacearum</i>		<i>Armillaria mellea</i>	
<i>Armillaria mellea</i>		<i>Fomes annosus</i>	
<i>Corticium salmonicolor</i>		<i>F. pini</i>	
<i>Fomes fastuosus</i>		<i>Fusarium fuliginosporum</i>	
<i>F. senex</i>		<i>Panellus rupicola</i>	
<i>Ganoderma lucidum</i>		<i>Peridermium cedri</i>	
<i>Macrophomina phaseoli</i>		<i>Phacidiopycnis pseudotsugae</i>	
<i>Pellicularia rolfsii</i>		<i>Polyporus tomentosus</i> var. <i>circinatus</i>	
<i>Phytophthora cambivora</i>		Cedrus libanensis Juss.	cedar-of-Lebanon
<i>Trichosporium vesiculosum</i>		<i>Fomes officinalis</i>	
<i>Ustulina deusta</i>		<i>Phacidiopycnis pseudotsugae</i>	
Casuarina lepidophloia F. Muell.		Ceiba pentandra (L.) Gaertn.	kapok
	scalybark casuarina		
<i>Fomes robiniae</i>			
<i>F. robustus</i>			
Casuarina leptoclada Miq.	— --	Virus, swollen shoot	
<i>Pestalotia funerea</i>		<i>Armillaria mellea</i>	
Casuarina luehmannii R. T. Baker		<i>Calonectria rigidiuscula</i>	
		<i>Cercospora ceibae</i>	
<i>Fomes robustus</i>		<i>Fomes lamaoensis</i>	
Casuarina muricata Roxb.	— — —	<i>F. lignosus</i>	
<i>Trichosporium vesiculosum</i>		<i>Glomerella gossypii</i>	
Casuarina stricta Ait.	coast casuarina	<i>Phyllosticta criodendri</i>	
<i>Fomes robiniae</i>		<i>Physalospora rhodina</i>	
<i>F. robustus</i>		<i>Polyporus zonalis</i>	
<i>Ganoderma lucidum</i>		<i>Ustulina deusta</i>	
Casuarina suberosa Otto & Dietr.		Celtis sp.	hackberry
	erect casuarina	<i>Fomes lamaoensis</i>	
<i>Fomes robustus</i>		<i>Polyporus squamosus</i>	
Catalpa bignonioides Walt.		<i>Uredo celtidis</i>	
	southern catalpa	Celtis australis L.	European hackberry
<i>Phyllosticta catalpicola</i>		<i>Helicoceras celtidis</i>	
Catha edulis Forsk.	Arabian-tea	<i>Phyllosticta destruens</i>	
<i>Dielsiella pollaccii</i>		<i>Phytophthora citrophthora</i>	
Cecropia sp.	pumpwood	<i>Taphrina celtis</i>	
<i>Fomes lignosus</i>		<i>Uncinula polychaeta</i>	
<i>Polyporus zonalis</i>		Celtis biondii Pampan	— — —
Cecropia peltata L.		<i>Uncinula clintonii</i>	
	shieldleaf pumpwood	Celtis boliviensis Planch.	Bolivian hackberry
<i>Calostilbe striispora</i>		<i>Uncinula polychaeta</i>	
<i>Sclerotium coffeicola</i>		Celtis caucasica Willd.	Caucasian hackberry
Cedrela macrocarpa Ducke	— — —	<i>Coryneum mori</i>	
<i>Phyllactinia guttata</i>		Celtis kraussiana Bernh.	— — —
Cedrela mexicana M. J. Roem.		<i>Ganoderma applanatum</i>	
	Mexican cedrela	<i>Lenzites betulina</i>	
<i>Phyllachora balansae</i>		<i>Trametes obstinatus</i>	
Cedrela odorata L.	cigarbox cedrela	<i>T. subflava</i>	
<i>Armillaria mellea</i>			

<i>Celtis latifolia</i> Planch. ———	<i>Phytophthora cactorum</i>
<i>Napicladium celtidis</i>	<i>Pythium debaryanum</i>
<i>Celtis sinensis</i> Pers.	<i>Sclerotinia kitajimana</i>
Chinese hackberry	<i>Chamaecyparis pisifera</i> (Sieb. & Zucc.)
<i>Helicobasidium mompa</i>	Endl. Sawara false-cypress
<i>Uncinula clintonii</i>	<i>Gymnosporangium solenoides</i>
<i>U. polychaeta</i>	<i>Helicobasidium mompa</i>
<i>Celtis sinensis</i> Pers. var. <i>japonica</i>	<i>Chamaecyparis pisifera</i> f. <i>plumosa</i>
(Planch.) Nakai ———	Beissn. ———
<i>Uncinula clintonii</i>	<i>Pestalotia funerea</i>
<i>Celtis tala</i> Gill. ———	<i>Chamaecyparis pisifera</i> f. <i>squarrosa</i>
<i>Cercospora spegazzinii</i>	Beissn. & Hochst. ———
<i>Phyllosticta talaie</i>	<i>Pestalotia funerea</i>
<i>Uncinula polychaeta</i>	<i>Chlorophora excelsa</i> (Welw.) Benth. &
<i>Celtis tournefortii</i> Lam.	Hook. f. Iroko fustic-tree
oriental hackberry	<i>Armillaria mellea</i>
<i>Helicoceras celtidis</i>	<i>Fomes lamaoensis</i>
<i>Taphrina celtis</i>	<i>Helicobasidium compactum</i>
<i>Celtis zenkeri</i> Engl. ———	<i>Chlorophora regia</i> A. Chev. ———
<i>Calonectria rigidiuscula</i>	<i>Uredo chlorophorae</i>
<i>Centrolobium robustum</i> Mart. ———	<i>Chlorophora tinctoria</i> (L.) Gaud.
<i>Elsinoë centrolobii</i>	drug fustic-tree
<i>Ceratonia siliqua</i> L.	<i>Uredo maclurae</i>
carob (St. Johns-bread)	<i>Chloroxylon swietenia</i> DC.
<i>Colletotrichum gloeosporioides</i>	Ceylon satinwood
<i>Oidium ceratoniae</i>	<i>Cercospora chloroxyli</i>
<i>Cercis chinensis</i> Bunge	<i>Chomelia asiatica</i> (L.) Kuntze ———
Chinese redbud	<i>Puccinia spongiosa</i>
<i>Cercospora chionea</i>	<i>Chrysalidocarpus lutescens</i> H. Wendl.
<i>Diplodia cerci-chinensis</i>	yellow butterfly-palm
<i>Cercis siliquastrum</i> L. Judas-tree	<i>Phytophthora palmivora</i>
<i>Aecidium lipskianum</i>	<i>Chrysalidocarpus madagascariensis</i>
<i>Septoria cercidis</i>	Becc. Madagascar butterfly-palm
<i>Verticillium albo-atrum</i>	<i>Phytophthora palmivora</i>
<i>Chamaecyparis formosensis</i> Matsumura	<i>Chrysobalanus icaco</i> L.
Formosa false-cypress	icaco cocoplum
<i>Stereum sulcatum</i>	<i>Cercospora chrysobalani</i>
<i>Chamaecyparis lawsoniana</i> (A. Murr.)	<i>Pestalotia funerea</i>
Parl. Port-Orford-cedar	<i>Chrysophyllum cainito</i> L. starapple
<i>Didymascella thujina</i>	Virus, rosette
<i>Monochaetia unicornis</i>	<i>Uredo amicosae</i>
<i>Phytophthora cinnamomi</i>	<i>Chrysophyllum oliviforme</i> L.
<i>Chamaecyparis obtusa</i> (Sieb. & Zucc.)	satinleaf
Endl. hinoki false-cypress	<i>Asterina chrysophylli</i>
<i>Armillaria mellea</i>	<i>Chukrasia tabularis</i> A. Juss.
<i>Botrytis cinerea</i>	Chittagong chickrassy
<i>Ceratocystis piceae</i>	<i>Fomes senex</i>
<i>Helicobasidium mompa</i>	<i>Cinchona delessertiana</i> Standl. ———
<i>Lophodermium chamaecyparisi</i>	<i>Elsinoë cinchonae</i>
<i>Pellicularia filamentosa</i>	<i>Cinchona micrantha</i> Ruiz. & Pav. ———
<i>Pestalotia chamaecyparidis</i>	
<i>P. funerea</i>	<i>Phytophthora quininea</i>

Cinchona officinalis L.	—	Cinnamomum camphora (L.) Nees & Eberm.	camphor-tree
<i>Armillaria mellea</i>		<i>Colletotrichum gloeosporioides</i>	
<i>Ceratocystis fimbriata</i>		<i>Corticium salmonicolor</i>	
<i>Cercospora cinchonae</i>		<i>Fomes lamaoensis</i>	
<i>Corticium salmonicolor</i>		<i>F. lignosus</i>	
<i>Elsinoë cinchonae</i>		<i>Glomerella cinnamomi</i>	
<i>Guignardia yersini</i>		<i>Helicobasidium mompa</i>	
<i>Pellicularia filamentosa</i>		<i>Phyllosticta cinnamomi-glanduliferi</i>	
<i>P. koleroga</i>		<i>Phytophthora cinnamomi</i>	
<i>P. rolfsii</i>		Cinnamomum cassia Nees & Eberm.	cassiabark-tree
<i>Phlyctaena cinchonae</i>		<i>Exobasidium cinnamomi</i>	
<i>Phoma cinchonae</i>		Cinnamomum cecidodaphne Meissn.	—
<i>Phyllosticta cinchonaecola</i>		<i>Ganoderma applanatum</i>	
<i>P. honbaensis</i>		Cinnamomum culilawan Blume	culiban cinnamon
<i>P. yersini</i>		<i>Phytophthora cinnamomi</i>	
<i>Physalospora cinchonae</i>		Cinnamomum glanduliferum Meissn.	Nepal camphor-tree
<i>Phytophthora cinnamomi</i>		<i>Phyllosticta cinnamomi-glanduliferi</i>	
<i>P. palmivora</i>		Cinnamomum iners Reinw.	—
<i>P. parasitica</i>		<i>Aecidium cinnamomi</i>	
<i>P. quininea</i>		Cinnamomum sintok Blume	—
<i>Pythium vexans</i>		<i>Phytophthora cinnamomi</i>	
Cinchona pitayensis Wedd.	—	Cinnamomum zeylanicum Blume	Ceylon cinnamon
<i>Phytophthora parasitica</i>		<i>Aecidium cinnamomi</i>	
Cinchona pubescens Vahl	—	<i>Exobasidium cinnamomi</i>	
<i>Armillaria mellea</i>		<i>Phyllosticta cinnamomi</i>	
<i>Ceratocystis fimbriata</i>		<i>Phytophthora cinnamomi</i>	
<i>Corticium salmonicolor</i>		Cladrastis shikokiana Mak.	—
<i>Elsinoë cinchonae</i>		<i>Uromyces cladrastidis</i>	
<i>Fusarium javanicum</i>		<i>U. shikokianus</i>	
<i>Guignardia yersini</i>		Clerodendrum sp.	—
<i>Pellicularia filamentosa</i>		<i>Aecidium clerodendri</i>	
<i>Phlyctaena cinchonae</i>		Clerodendrum buchholzii Gürke	—
<i>Phoma cinchonae</i>		<i>Hemileia scholzi</i>	
<i>Phyllosticta cinchonaecola</i>		Clerodendrum calamitosum L.	—
<i>P. honbaensis</i>		<i>Endophyllum superficiale</i>	
<i>P. yersini</i>		Clerodendrum capitatum Schum. & Thou.	—
<i>Physalospora cinchonae</i>		<i>Meliola clerodendricola</i>	
<i>P. rhodina</i>		Clerodendrum cyrtophyllum Turcz.	mayflower glorybower
<i>Phytophthora cinnamomi</i>		<i>Aecidium clerodendri</i>	
<i>P. palmivora</i>		Clerodendrum fragrans Vent.	fragrant glorybower
<i>P. parasitica</i>		<i>Aecidium clerodendri</i>	
<i>P. quininea</i>		<i>Caeoma clerodendri</i>	
<i>Prillieuxina cinchonae</i>			
<i>Pythium vexans</i>			
Cinnamodendron axillare Endl.	—		
<i>Meliola cinnamodendri</i>			
Cinnamomum sp.	cinnamon		
<i>Ganoderma pseudoferreum</i>			
Cinnamomum burmannii Blume	Malay cinnamon		
<i>Colletotrichum gloeosporioides</i>			
<i>Phytophthora cinnamomi</i>			

Clerodendrum fragrans Vent.(Continued) **fragrant glorybower***Cercospora volkameriae**Coleosporium clerodendri**Endophyllum superficiale***Clerodendrum inerme** (L.) Gaertn.*Cercospora kashotoensis**Puccinia erebia***Clerodendrum infortunatum** Gaertn.*Ascochyta infortunata**Colletotrichum gloeosporioides**Meliola clerodendricola***Clerodendrum intermedium** Cham.*Endophyllum superficiale***Clerodendrum minahassae** Teijsm. & Binn.*Puccinia erebia***Clerodendrum paniculatum** L.*Aecidium clerodendri**Hemileia scholzii***Clerodendrum quadriloculare** Merr.*Endophyllum superficiale***Clerodendrum scandens** Beauv.*Cercospora volkameriae***Clerodendrum speciosissimum** Van Geert **Java glorybower***Pellicularia filamentosa***Clerodendrum trichotomum** Thunb. **harlequin glorybower***Cercospora clerodendri**Coleosporium clerodendri***Clerodendrum villosum** Blume*Coleosporium clerodendri**C. euphrasiae***Clusia gundlachii** Stahl*Asterina diplocarpa**Meliola clusiae***Clusia multiflora** H. B. K.*Uredo zarumae***Clusia rosea** Jacq. **copey clusia***Coccomyces clusiae**Dimerium melioloides**Pestalotia funerea**Uredo clusiae***Coccoloba** sp.*Clypeotrabutia portoricensis***Coccoloba uvifera** (L.) L. **seagrape***Leimbosia tenella**Phyllosticta coccolobae***Coccoloba venosa** L.*Clypeotrabutia portoricensis***Cocos nucifera** L.**coconut***Xanthomonas vasculorum**Armillaria mellea**Catacauma torrendiella**Ceratocystis paradoxa**Coniothyrium cocoas**Corticium penicillatum**Didymella cocoina**Diplodia epicocos**Exosporium palmivorum**Fomes annularis**F. lamaoensis**F. lignosus**Ganoderma lucidum**G. pseudoferreum**Graphiola cocoina**Macrophomina phaseoli**Mycosphaerella gastonii**Pestalotia palmarum**Phyllosticta cocos**Physalospora rhodina**Phytophthora palmivora**P. parasitica**Polyporus zonalis***Coffea abeokutae** Cramer*Ceratocystis paradoxa**Mycena citricolor***Coffea arabica** L. **Arabian coffee***Virus, mosaic**Armillaria mellea**Botrytis cinerea**Ceratocystis fimbriata**Cercospora coffeicola**Colletotrichum gloeosporioides**Corticium salmonicolor**Fomes lamaoensis**F. lignosus**Fusarium lateritium**F. solani* var. *eumartii**Ganoderma pseudoferreum**Glomerella cingulata**G. coffeicola**Helicobasidium compactum**Hemileia coffeicola**H. vastatrix**Macrophomina phaseoli**Micropeltella mulleri**Micropeltis applanata**Mycena citricolor**Mycosphaerella coffeicola**Myrothecium roridum**Paracapnodium brasiliense**Pellicularia filamentosa**P. koleroga*

<i>Phyllosticta coffeicola</i>	<i>Coffea congensis</i> Frohener	—
<i>Polyporus rubidus</i>	<i>Hemileia vastatrix</i>	—
<i>P. zonalis</i>	<i>Coffea congensis</i> var. <i>chilotii</i> Pierre	—
<i>Rhizoctonia chousii</i>	<i>Hemileia vastatrix</i>	—
<i>Rosellinia aquila</i>	<i>Coffea dewevrei</i> De Wild. & Dur.	—
<i>R. bunodes</i>	<i>Gibberella xylarioides</i>	—
<i>R. pepo</i>	<i>Sclerotium coffeicola</i>	—
<i>Sclerotium coffeicola</i>	<i>Coffea eugenioides</i> S. Moore	—
Coffea arabica var. bourbon Hort.	<i>Hemileia vastatrix</i>	—
<i>Ceratocystis fimbriata</i>	<i>Coffea excelsa</i> A. Chev.	—
Coffea arabica var. maragogipes	<i>Cercospora coffeicola</i>	—
C. J. Fernandez	<i>Gibberella xylarioides</i>	—
<i>Nectria dodgeii</i>	<i>Glomerella cingulata</i>	—
Coffea arabica var. mokka Cramer	<i>Hemileia vastatrix</i>	—
<i>Hemileia vastatrix</i>	Coffea liberica Hiern. Liberian coffee	—
Coffea arabica var. myrtifolia (Roxb.)	<i>Ceratocystis paradoxa</i>	—
A. Chev.	<i>Colletotrichum gloeosporioides</i>	—
<i>Hemileia vastatrix</i>	<i>Corticium salmonicolor</i>	—
<i>Mycosphaerella coffeae</i>	<i>Fomes lamaoensis</i>	—
Coffea bukohensis Zimmerm.	<i>F. lignosus</i>	—
<i>Cercospora coffeicola</i>	<i>Hemileia vastatrix</i>	—
<i>Glomerella cingulata</i>	<i>Mycena citricolor</i>	—
Coffea camoensis	<i>Myrothecium roridum</i>	—
<i>Phyllosticta camoensis</i>	<i>Sclerotium coffeicola</i>	—
Coffea canephora Pierre	<i>Trachysphaera fructigena</i>	—
<i>Ceratocystis paradoxa</i>	Coffea neo-arnoldiana A. Chev.	—
<i>Cercospora coffeicola</i>	<i>Gibberella xylarioides</i>	—
<i>Clitocybe tabescens</i>	Coffea stenophylla G. Don	—
<i>Hemileia vastatrix</i>	Sierra Leone coffee	—
<i>Mycena citricolor</i>	<i>Cercospora coffeicola</i>	—
Coffea canephora var. laurentii (De	Cola acuminata (Beauv.) Schott &	—
Wild.) A. Chev. Lawrence coffee	Endl. Sudan colanut	—
<i>Mycena citricolor</i>	<i>Armillaria mellea</i>	—
Coffea canephora var. robusta (L.	<i>Calonectria rigidiuscula</i>	—
Linden) A. Chev. robust coffee	<i>Fomes lignosus</i>	—
<i>Virus, mosaic</i>	<i>Hainesia kolae</i>	—
<i>Armillaria mellea</i>	<i>Marasmius scandens</i>	—
<i>Cercospora coffeicola</i>	<i>Physalospora rhodina</i>	—
<i>Cladosporium herbarum</i>	Cola chlamydanthra K. Schum.	—
<i>Clitocybe tabescens</i>	<i>Virus, swollen shoot</i>	—
<i>Colletotrichum gloeosporioides</i>	Cola cordifolia (Cav.) R. Br.	—
<i>Fomes lamaoensis</i>	<i>Virus, swollen shoot</i>	—
<i>F. lignosus</i>	<i>Calonectria rigidiuscula</i>	—
<i>Fusarium oxysporum</i>	Cola nitida (Vent.) A. Chev.	—
<i>Gibberella xylarioides</i>	<i>Pellicularia kolcroga</i>	—
<i>Glomerella cingulata</i>	Cola togoensis Engl. & K. Krause	—
<i>Hemileia vastatrix</i>	<i>Virus, swollen shoot</i>	—
<i>Macrophomina phaseoli</i>	<i>Calonectria rigidiuscula</i>	—
<i>Mycena citricolor</i>		
<i>Myrothecium roridum</i>		
<i>Polyporus rubidus</i>		

<i>Cola vera</i> K. Schum. ———	<i>Cordia dichotoma</i> Forst. f. ———
<i>Fomes lignosus</i>	<i>Aecidium morobeanum</i>
<i>Marasmius scandens</i>	<i>Cordia discolor</i> Cham. ———
<i>Colebrookia oppositifolia</i> Sm. ———	<i>Aecidium brasiliense</i>
<i>Uredo colebrookiae</i>	<i>Cordia ecalyculata</i> Vell. ———
<i>Colubrina arborescens</i> (Mill.) Sarg.	<i>Aecidium brasiliense</i>
coffee colubrina	<i>Cordia ferruginea</i> (Lam.) Roem. & Schult. ———
<i>Uredo colubrinae</i>	<i>Alveolaria cordiae</i>
<i>Colubrina reclinata</i> (L. Hér.) Brongn.	<i>Asterina vagans</i>
soldierwood	<i>Dimeriella cordiae</i>
<i>Asterina colubrinae</i>	<i>Cordia gerascanthus</i> L. ———
<i>Colubrina rufa</i> Reiss. ———	<i>Puccinia cordiae</i>
<i>Cercospora colubrinae</i>	<i>P. corticola</i>
<i>Combretum</i> sp. ———	<i>Cordia glabra</i> L. ———
combretum	<i>Diatractium cordiae</i>
<i>Armillaria mellea</i>	<i>Cordia globosa</i> (Jacq.) H. B. K. ———
<i>Combretum decandrum</i> Roxb. ———	<i>Aecidium cordiae</i>
<i>Corticium repens</i>	<i>Cordia lanceolata</i> (Desv.) H. B. K. ———
<i>Combretum secundum</i> Jacq. ———	<i>Dimeriella cordiae</i>
<i>Aecidium adenariae</i>	<i>Cordia laxiflora</i> H. B. K. ———
<i>Mollisia grisleae</i>	<i>Alveolaria cordiae</i>
<i>Condalia obovata</i> Hook. ———	<i>Cordia macleodii</i> Hook f. & Thoms. ———
<i>Meliola condaliae</i>	MacLeod cordia
<i>Conocarpus erectus</i> L. ———	<i>Uncinula tectonae</i>
button-mangrove	<i>Cordia macrostachya</i> (Jacq.) Roem. & Schult. ———
<i>Cercospora conocarpi</i>	<i>Virus, mosaic</i>
<i>Coprosma billardieri</i> Hook f. ———	<i>Cordia myxa</i> L. ———
<i>Puccinia coprosmae</i>	<i>Cercospora myxa</i>
<i>Coprosma hirtella</i> Labill. ———	<i>Cordia nodosa</i> Lam. ———
<i>Puccinia coprosmae</i>	<i>Aecidium lindavianum</i>
<i>Cordia</i> sp. ———	<i>Cordia obscura</i> Cham. ———
cordia	<i>Aecidium brasiliense</i>
<i>Aecidium brasiliense</i>	<i>Cordia riparia</i> H. B. K. ———
<i>Diatractium cordiae</i>	<i>Alveolaria cordiae</i>
<i>Dimeriella cordiae</i>	<i>Cordia rothii</i> Roem. & Schult. ———
<i>Elsinoë mayaguensis</i>	<i>Aecidium brasiliense</i>
<i>Cordia alba</i> (Jacq.) Roem. & Schult. ———	<i>Cordia sellowiana</i> Cham. ———
white cordia	<i>Elsinoë costai</i>
<i>Aecidium lindavianum</i>	<i>E. mayaguensis</i>
<i>Cordia alliodora</i> (Ruiz. & Pav.) Oken ———	<i>Cordia suaveolens</i> Blume ———
<i>Puccinia cordiae</i>	<i>Guignardia javanica</i>
<i>Cordia corymbosa</i> (L.) G. Don ———	<i>Cordia sulcata</i> DC. ———
<i>Dimeriella cordiae</i>	<i>Dimeriella cordiae</i>
<i>Dimerium stevensii</i>	<i>Cordia tarmensis</i> Krause ———
<i>Cordia curassavica</i> (Jacq.) Roem. & Schult. ———	<i>Alveolaria cordiae</i>
<i>Aecidium cordiae</i>	<i>Cordia urticaefolia</i> Cham. ———
<i>Cordia cylindrostachya</i> (Ruiz. & Pav.) Roem. & Schult. ———	<i>Aecidium cordiae</i>
<i>Aecidium brasiliense</i>	<i>Corylopsis platypetala</i> Rehd. & E. H. Wils. ———
<i>A. cordiae</i>	<i>Aecidium hamamelidis</i>
<i>Alveolaria cordiae</i>	
<i>Chaetostigma cordiae</i>	
<i>Uredo cordiarum</i>	

Corylopsis veitchiana Bean	Crataegus cuneata Sieb. & Zucc.
<i>Veitch</i> winter-hazel	Nippon hawthorn
<i>Aecidium hamamelidis</i>	<i>Gymnosporangium haraeae</i>
Corylus avellana L. European filbert	Crataegus heldreichii Boiss.
<i>Fomes ignarius</i>	Heldreich hawthorn
<i>Ganoderma lucidum</i>	<i>Gymnosporangium clavariiforme</i>
<i>Nectria ditissima</i>	Crataegus hupehensis Sarg. ———
<i>Phyllactinia guttata</i>	<i>Gymnosporangium haraeae</i>
Corylus colurna L. Turkish filbert	Crataegus inaequalis Bertol. ———
<i>Microsphaera alni</i>	<i>Gymnosporangium orientale</i>
<i>Pucciniastrum coryli</i>	Crataegus intricata Lange
Corylus cornuta Marsh. beaked filbert	thicket hawthorn
<i>Microsphaera alni</i>	<i>Aecidium patulum</i>
Corylus heterophylla Fisch.	<i>Gymnosporangium clavariiforme</i>
Siberian filbert	<i>Lophodermium hysterioides</i>
<i>Microsphaera alni</i>	Crataegus × lambertiana Lange
<i>Pucciniastrum coryli</i>	Lambert hawthorn
Corylus heterophylla Fisch. var. japonica Koidz. ———	<i>Gymnosporangium clavariiforme</i>
<i>Microsphaera alni</i>	Crataegus monogyna Jacq.
<i>Pucciniastrum coryli</i>	one-seed hawthorn
Corylus sieboldiana Blume	<i>Fomes annosus</i>
Japanese filbert	<i>Gymnosporangium clavariiforme</i>
<i>Microsphaera alni</i>	<i>G. mespili</i>
<i>Pucciniastrum coryli</i>	<i>Helicobasidium purpureum</i>
Corylus sieboldiana var. mandshurica (Maxim. & Rupr.) Schneid.	<i>Lophodermium hysterioides</i>
Manchurian filbert	<i>Phyllactinia guttata</i>
<i>Microsphaera alni</i>	<i>Podosphaera oxycanthae</i>
<i>Pucciniastrum coryli</i>	<i>Taphrina crataegi</i>
Cotoneaster sp. cotoneaster	Crataegus nigra Waldst. & Kit.
<i>Cytospora ambiens</i>	European black hawthorn
<i>Gymnosporangium mespili</i>	<i>Gymnosporangium clavariiforme</i>
Cotoneaster affinis Lindl. var. bacillaris (Lindl.) Schneid.	Crataegus oxyacantha L.
brownberry cotoneaster	English hawthorn
<i>Fomes conchatus</i>	<i>Erwinia amylovora</i>
Cotoneaster frigida Wall.	<i>Armillaria mellea</i>
Himalayan cotoneaster	<i>Cercospora crataegi</i>
<i>Botrytis cinerea</i>	<i>Coniophora puteana</i>
Cotoneaster integerrima Med.	<i>Fomes annosus</i>
European cotoneaster	<i>F. ignarius</i>
<i>Gymnosporangium mespili</i>	<i>Gymnosporangium clavariiforme</i>
Coutarea hexandra (Jacq.) K. Schum. ———	<i>G. mespili</i>
<i>Aecidium coutareae</i>	<i>G. tremelloides</i>
× Crataegomespilus grandiflora (Sm.) Bean	<i>Nectria galligena</i>
bigflower hawmedlar	<i>Podosphaera oxycanthae</i>
<i>Gymnosporangium clavariiforme</i>	<i>Taphrina crataegi</i>
Crataegus calycina Peterm. ———	<i>Venturia crataegi</i>
<i>Gymnosporangium clavariiforme</i>	Crataegus pentagyna Waldst. & Kit. ———
	<i>Gymnosporangium clavariiforme</i>
	Crataegus pinnatifida Bunge
	Chinese hawthorn
	<i>Gymnosporangium haraeae</i>
	<i>Podosphaera oxycanthae</i>

Crataegus sanguinea Pall.	<i>Stagonospora cryptomeriae</i>
redhaw hawthorn	<i>Valsa cryptomeriae</i>
<i>Gymnosporangium clavariiforme</i>	Cryptomeria japonica f. <i>elegans</i> Beissn.
<i>Podosphaera oxyacanthae</i>	plume Japanese cryptomeria
<i>Taphrina crataegi</i>	<i>Cladosporium laricis</i>
Crataegus sanguinea var. <i>chlorocarpa</i>	Cudrania tricuspidata (Carr.) Bur.
(K. Koch) Schneid.	
<i>Gymnosporangium tremelloides</i>	<i>Uncinula miyabei</i>
Crataegus scabrifolia Franch. & Rehd.	Cunninghamia lanceolata (Lamb.)
	Hook. common China-fir
<i>Gymnosporangium clavariiforme</i>	<i>Macrophoma sinensis</i>
<i>Podosphaera oxyacanthae</i>	<i>Pestalotia funerea</i>
Crataegus succulenta Schrad.	Cupania sp. cupania
fleshy hawthorn	<i>Irenina wrightii</i>
<i>Gymnosporangium clavariiforme</i>	Cupania americana L.
<i>G. tremelloides</i>	American cupania
Crataeva religiosa Forst. f.	<i>Cionothrix cupaniae</i>
<i>Aecidium crataevae</i>	<i>Skierka cristata</i>
Crescentia cujete L.	Cupania belizensis Standl.
common calabash-tree	<i>Skierka cristata</i>
<i>Irenina arachnoidea</i>	Cupania cubensis Maza & Molt.
Cryptocarya bellota ?	<i>Skierka cristata</i>
<i>Venturia bellotae</i>	Cupania glabra Sw. Florida cupania
Cryptocarya mandioccana Meissn.	<i>Cionothrix cupaniae</i>
	Cupania guatemalensis Radlk.
<i>Drepanoconis larviformis</i>	Guatemala cupania
Cryptolepsis buchananii Roem. & Schult.	<i>Cercospora cupaniae</i>
<i>Aecidium ponderosum</i>	Cupania oblongifolia Mart.
Cryptomeria japonica (L. f.) D. Don	<i>Sphaceloma cupaniae</i>
Japanese cryptomeria	Cupania vernalis Cambess.
<i>Armillaria mellea</i>	<i>Sphaceloma cupaniae</i>
<i>Botrytis cinerea</i>	Cupressus sp. cypress
<i>Cercospora cryptomeriae</i>	<i>Alternaria tenuis</i>
<i>Fomes annosus</i>	<i>Armillaria mellea</i>
<i>F. ulmarius</i>	<i>Fusarium bulbigenum</i> var. <i>blasticola</i>
<i>Helicobasidium mompa</i>	<i>Phytophthora cinnamomi</i>
<i>Hysterium thujopsidis</i>	<i>Pythium ultimum</i>
<i>Leptosphaerulina japonica</i>	<i>Rhizoctonia lamellifera</i>
<i>Macrophoma sugi</i>	Cupressus duclouxiana Hickel
<i>Mycosphaerella cryptomeriae</i>	Bhutan cypress
<i>Pellicularia filamentosa</i>	<i>Alternaria tenuis</i>
<i>Pestalotia funerea</i>	<i>Gymnosporangium cunninghamianum</i>
<i>P. shiraiana</i>	<i>G. distortum</i>
<i>Phoma cryptomeriae</i>	<i>Monochaetia unicornis</i>
<i>Phomopsis juniperovora</i>	Cupressus funebris Endl.
<i>Physalospora cryptomeriae</i>	mourning cypress
<i>Phytophthora parasitica</i>	<i>Gymnosporangium tsingshenensis</i>
<i>Polyporus gilvus</i>	Cupressus lusitanica Mill.
<i>Sclerotinia kitajimana</i>	Mexican cypress
<i>Sphaeropsis cryptomeriae</i>	<i>Armillaria mellea</i>
	<i>Hymenochaete mougeotii</i>
	<i>Monochaetia unicornis</i>
	<i>Pestalotia funerea</i>

<i>Cupressus lusitanica</i> var. <i>benthamii</i> (Endl.) Carr.	<i>Fomes lamaoensis</i>
Bentham Mexican cypress	<i>F. robiniae</i>
<i>Gymnosporangium meridissimum</i>	<i>Fusarium solani</i>
<i>Macrophomina phaseoli</i>	<i>Ganoderma applanatum</i>
<i>Monochaetia unicornis</i>	<i>G. lucidum</i>
<i>Cupressus macrocarpa</i> Hartw.	<i>Marasmius equestris</i>
Monterey cypress	<i>Pellicularia filamentosa</i>
<i>Armillaria mellea</i>	<i>Polyporus gilvus</i>
<i>Coryneum cardinale</i>	<i>Schizophyllum commune</i>
<i>Monochaetia unicornis</i>	<i>Uredo sissoo</i>
<i>Pestalotia funerea</i>	<i>Uromyces archrous</i>
<i>Polyporus versicolor</i>	<i>Delonix regia</i> (Bojer) Raf.
<i>Cupressus sempervirens</i> L.	flamboyant-tree (royal poinciana)
Italian cypress	<i>Armillaria mellea</i>
<i>Coryneum cardinale</i>	<i>Cercospora theae</i>
<i>Diplodia pinea</i>	<i>Fomes lignosus</i>
<i>Gymnosporangium minus</i>	<i>Ganoderma lucidum</i>
<i>Monochaetia unicornis</i>	<i>Ustilina deusta</i>
<i>Pestalotia funerea</i>	<i>Dendrocalamus</i> sp. ———
<i>Trametes troglit</i>	<i>Pellicularia koleroga</i>
<i>Cupressus sempervirens</i> f. <i>stricta</i> (Ait.) Rehd.	<i>Uredo ignava</i>
pyramidal Italian cypress	<i>Dendrocalamus latiflorus</i> Munro ———
<i>Monochaetia unicornis</i>	<i>Uredo dendrocalami</i>
<i>Curtisia faginea</i> Ait. assegai-tree	<i>Dendrocalamus strictus</i> Nees ———
<i>Fomes connatus</i>	<i>Dasturella divina</i>
<i>F. robiniae</i>	<i>Desplatzia lutea</i> A. Chev. ———
<i>Ganoderma applanatum</i>	<i>Calonectria rigidiuscula</i>
<i>Cyathea arborea</i> (L.) J. E. Smith	<i>Dictyosperma album</i> Wendl. & Drude
tree-fern	white princess-palm
<i>Griggsia cyathea</i>	<i>Xanthomonas vascularum</i>
<i>Cybastax antisiphilitica</i> Mart.	<i>Dillenia retusa</i> Thunb. ———
primavera	<i>Cercospora dilleniae</i>
<i>Cercospora cybistaxis</i>	<i>Dimorphandra latifolia</i> Tul.
<i>Dacrydium cupressinum</i> Soland.	broadleaf dimorphandra
rimu dacrydium	<i>Irene cubitorum</i>
<i>Stereum sanguinolentum</i>	<i>Diospyros</i> sp. ———
<i>Dalbergia amerimnum</i> Benth. ———	<i>Fomes annularis</i>
<i>Sphaerophragmium dalbergiae</i>	<i>Diospyros discolor</i> Willd.
<i>Dalbergia lactea</i> Vathe ———	mbola persimmon
<i>Auerswaldia dalbergiae</i>	<i>Ganoderma applanatum</i>
<i>Dalbergia latifolia</i> Roxb.	<i>Schizophyllum commune</i>
East Indian rosewood	<i>Diospyros kaki</i> L. f. <i>kaki persimmon</i>
<i>Fomes lamaoensis</i>	<i>Elsinoë diospyri</i>
<i>Ganoderma lucidum</i>	<i>Helicobasidium mompa</i>
<i>Polyporus gilvus</i>	<i>Phyllactinia guttata</i>
<i>Dalbergia paniculata</i> Roxb. ———	<i>Diospyros lotus</i> L.
<i>Maravalia pterocarp</i>	dateplum persimmon
<i>Dalbergia saxatilis</i> Hook. f. ———	<i>Phyllactinia guttata</i>
<i>Phyllachora lactea</i>	<i>Dipholis salicifolia</i> (L.) A. DC.
<i>Dalbergia sissoo</i> Roxb. sissoo	willow bastic
<i>Cercospora sissoo</i>	<i>Cylindrocladium scoparium</i>
	<i>Puccinia johnstonii</i>

Diploglottis cunninghamii Hook. f.	Ehretia acuminata R. Br.
<i>Uromyces diploglottidis</i>	heliotrope-tree
Dipterocarpus grandiflorus Blanco	<i>Bubakia ehretiae</i>
Apitong gurjinoil tree	<i>Schroeteriaaster ehretiae</i>
<i>Fomes annularis</i>	<i>Uredo ehretiae</i>
Dipterocarpus hasseltii Blume	Ehretia macrophylla Baker
<i>Phyllachora oblongispora</i>	largeleaf ehretia
Dipterocarpus subalpinus Foxworthy	<i>Uredo ehretiae</i>
<i>Phyllachora oblongispora</i>	Ehretia serrata Roxb.
Dipterocarpus vernicifluus Blanco	<i>Uredo ehretiae</i>
<i>Asterinella dipterocarpi</i>	Ehretia thyrsoiflora (Sieb. & Zucc.)
Dolichandrone platycalyx Baker	Nakai
<i>Cercospora dolichandrones</i>	<i>Cercospora ehretiae</i>
Dovyalis caffra (Hook. f. & Harv.)	<i>Schroeteriaaster ehretiae</i>
Warb.	Elaeis guineensis Jacq.
<i>Phyllachora aberiae</i>	African oilpalm
Dracaena sp. dracaena	Virus, mosaic
<i>Meliola dracaenicola</i>	<i>Armillaria mellea</i>
Dracaena cooperi Regel	<i>Ceratocystis paradoxa</i>
<i>Phyllosticta draconis</i>	<i>Cercospora elaeidis</i>
Dracaena draco L. dragon dracaena	<i>Fomes lamaoensis</i>
<i>Phyllosticta draconis</i>	<i>F. lignosus</i>
Dracontomelum dao Merr. & Rolfe	<i>Fusarium albedinis</i>
dao dragonplum	<i>F. oxysporum</i>
<i>Ganoderma lucidum</i>	<i>F. vasinfectum</i>
Drimys winteri Forst.	<i>Ganoderma applanatum</i>
wintersbark drimys	<i>G. lucidum</i>
<i>Actinothyrium drimydis</i>	<i>G. pseudoferreum</i>
Dryobalanops aromatica Gaertn. f.	<i>Glomerella cingulata</i>
common Borneo camphor	<i>Helminthosporium halodes</i> var. <i>elaeicola</i>
<i>Rosellinia bunodes</i>	<i>Meliolinella palmicola</i>
Durio zibethinus Murr. civet durian	<i>Mycosphaerella elaeidis</i>
<i>Corticium salmonicolor</i>	<i>Pestalotia palmarum</i>
<i>Ganoderma pseudoferreum</i>	<i>Phytophthora palmivora</i>
<i>Placosphaeria durionis</i>	<i>Ustilina deusta</i>
<i>Pythium vexans</i>	Elaeocarpus sp.
Dysoxylum cumingianum C. DC.	<i>Aecidium elaeocarpi</i>
<i>Asterinella dysoxyl</i>	<i>A. elaeocarpicola</i>
Dysoxylum richii C. DC.	Elaeocarpus argenteus Merr.
<i>Cercospora didymochetonis</i>	<i>Asterina elaeocarpi</i>
Dysoxylum spectabile Hook. f.	Elaeocarpus munroi Mast.
showy pencilwood	<i>Catacauma elaeocarpi</i>
<i>Pseudomonas dysoxyl</i>	Elaeocarpus oblongus Gaertn.
Ehretia sp. ehretia	<i>Catacauma elaeocarpi</i>
<i>Bubakia ehretiae</i>	Elaeocarpus pendulus Merr.
<i>Schroeteriaaster ehretiae</i>	<i>Asterina elaeocarpi</i>
	Elaeodendron croceum DC.
	<i>Fomes robiniae</i>
	Elaeodendron glaucum Pers.
	<i>Fomes robiniae</i>

Enterolobium contortisiliquum (Vell.)		Erythrina variegata L.	
Morong	_____	variegated coralbean	
<i>Ravenelia hassleri</i>		<i>Uredo erythrinae</i>	
<i>Trametes trogii</i>		Erythrina velutina Willd.	_____
Enterolobium cyclocarpum (Jacq.)		<i>Calostilbe striispora</i>	
Griseb.	guanacaste	<i>Macrophomina phaseoli</i>	
<i>Calostilbe striispora</i>		Erythroxyton sp.	_____
<i>Ganoderma pseudoferreum</i>		<i>Bubakia erythroxytonis</i>	
Erythrina sp.	coralbean	<i>Cronartium bresadoleanum</i>	
<i>Armillaria mellea</i>		Erythroxyton areolatum L.	_____
<i>Dicheirinia binata</i>		<i>Bubakia erythroxytonis</i>	
<i>Fomes lamaoensis</i>		Erythroxyton brevipes DC.	_____
<i>F. lignosus</i>		<i>Bubakia erythroxytonis</i>	
<i>Ganoderma pseudoferreum</i>		Erythroxyton coca Lam.	cocaine
<i>Rosellinia bunodes</i>		<i>Armillaria mellea</i>	
<i>Sphaerostilbe repens</i>		<i>Bubakia erythroxytonis</i>	
Erythrina altissima A. Chev.	_____	<i>Corticium salmonicolor</i>	
<i>Calonectria rigidiuscula</i>		<i>C. theae</i>	
Erythrina berterioana Urban	machette	<i>Mycena citricolor</i>	
<i>Uredo erythrinae</i>		<i>Xylaria apiculata</i>	
Erythrina crista-galli L.		Erythroxyton havanense Jacq.	_____
cockspur coralbean		<i>Bubakia erythroxytonis</i>	
<i>Dicheirinia binata</i>		Erythroxyton ovalifolium Peyr.	_____
<i>Elsinoë erythrinae</i>		<i>Bubakia erythroxytonis</i>	
<i>Pleospora erythrina</i>		Erythroxyton pelleterianum St. Hil.	_____
<i>Sphaceloma erythrinae</i>		<i>Bubakia erythroxytonis</i>	
Erythrina glauca Willd.		Eucalyptus sp.	eucalyptus
swamp immortelle		<i>Agrobacterium tumefaciens</i>	
<i>Calostilbe striispora</i>		<i>Armillaria mellea</i>	
<i>Dicheirinia binata</i>		<i>Botryosphaeria ribis</i> var. <i>chromogena</i>	
<i>Phaeosaccardinula seaveriana</i>		<i>Cercospora eucalypti</i>	
<i>Phyllosticta erythrinicola</i>		<i>Corticium salmonicolor</i>	
<i>Uredo erythrinae</i>		<i>Cylindrocladium scoparium</i>	
Erythrina indica Lam.		<i>Fistulina hepatica</i>	
India coralbean		<i>Fomes conchatus</i>	
<i>Xanthomonas erythrinae</i>		<i>F. fomentarius</i>	
<i>Fomes lignosus</i>		<i>Fusarium orthoceras</i>	
<i>Macrophomina phaseoli</i>		<i>Ganoderma applanatum</i>	
Erythrina lithosperma Blume	_____	<i>Oidium eucalypti</i>	
<i>Armillaria mellea</i>		<i>Pellicularia filamentosa</i>	
<i>Macrophomina phaseoli</i>		<i>Phytophthora cinnamomi</i>	
Erythrina mitis Jacq.	_____	<i>Pleurotus lampas</i>	
<i>Calostilbe striispora</i>		<i>Polyporus dryadeus</i>	
<i>Dicheirinia binata</i>		<i>P. sulphureus</i>	
<i>Macrophomina phaseoli</i>		<i>Rosellinia radiciperda</i>	
Erythrina poeppigiana (Walp.) O. F.		Eucalyptus alba Reinw.	
Cook	_____	poplar eucalyptus	
<i>Calostilbe striispora</i>		<i>Botrytis cinerea</i>	
<i>Phyllosticta erythrinicola</i>		Eucalyptus baxteri (Benth.) Maiden &	
Erythrina speciosa Andr.	_____	Blakely	_____
<i>Elsinoë erythrinae</i>		<i>Polyporus eucalyptorum</i>	
<i>Sphaceloma erythrinae</i>			

Eucalyptus botryoides Sm.

bangalay eucalyptus

*Botrytis cinerea**Fomes robustus***Eucalyptus camaldulensis Dehnh.**

longbeak eucalyptus

*Botrytis cinerea**Cercospora eucalypti**Fomes robustus**F. setulosus**Hypoxyylon mediterraneum**Oidium eucalypti**Polyporus eucalyptorum***Eucalyptus citriodora Hook.**

lemon-gum

*Agrobacterium tumefaciens**Armillaria mellea**Botrytis cinerea**Cylindrocladium scoparium**Ganoderma lucidum**Physalospora eucalyptorum**Phytophthora parasitica**Puccinia psidii**Trametes cubensis***Eucalyptus cladocalyx F. Muell.**

sugar-gum

*Colletotrichum gloeosporioides**Glomerella cingulata***Eucalyptus coccifera Hook. f.**

ridgetop eucalyptus

*Cylindrocladium scoparium***Eucalyptus diversicolor F. Muell.**

karri eucalyptus

*Cercospora theae**Endothia gyrosa***Eucalyptus diversifolia Bonpl. —***Rhytisma eucalypti***Eucalyptus elaeophora F. Muell.**

bundy eucalyptus

*Polyporus eucalyptorum***Eucalyptus fasciculosa F. Muell.***Fomes robustus***Eucalyptus ficifolia F. Muell.**

scarlet eucalyptus

*Cercospora eucalypti**Physalospora eucalyptorum***Eucalyptus gigantea Hook. f.**

delegate eucalyptus

*Cylindrocladium scoparium**Phyllosticta eucalypti***Eucalyptus globulus Labill.**

Tasmanian blue eucalyptus

*Armillaria mellea**Botrytis cinerea**Cercospora epicoccoides**C. eucalypti**Coryneum eucalypti**Cylindrocladium scoparium**Ganoderma lucidum**Macrophomina phaseoli**Mycosphaerella molleriana**Stereum hirsutum***Eucalyptus gomphocephala DC.**

tooart eucalyptus

*Hypoxyylon mediterraneum***Eucalyptus gunnii Hook. f.**

cider eucalyptus

*Cylindrocladium scoparium***Eucalyptus leucoxydon F. Muell.**

white ironbark eucalyptus

*Polyporus eucalyptorum***Eucalyptus longifolia Link & Otto**

longleaf woollybutt eucalyptus

*Cylindrocladium scoparium***Eucalyptus maidenii F. Muell.**

Maiden eucalyptus

*Stereum hirsutum***Eucalyptus marginata Sm.**

jarrah eucalyptus

*Fistulina hepatica**Polyporus eucalyptorum***Eucalyptus obliqua L'Hér.**

messmate stringybark eucalyptus

*Cylindrocladium scoparium**Fomes conchatus**Mycosphaerella heimii**Pestalotia molleriana**Polyporus dryadeus**P. eucalyptorum**P. schweinitzii***Eucalyptus odorata Behr & Schlecht.**

peppermint eucalyptus

*Fomes robiniae**F. robustus***Eucalyptus oleosa F. Muell.**

oil mallee eucalyptus

*Fomes robiniae**F. robustus***Eucalyptus ovata Labill.**

ovalleaf eucalyptus

Fomes robustus

Eucalyptus paniculata Sm.	<i>Asterinella cylindrotheca</i>
gray ironbark eucalyptus	<i>Catacauma eugeniicola</i>
<i>Armillaria mellea</i>	<i>Fomes senecæ</i>
<i>Fomes robiniae</i>	<i>Puccinia psidii</i>
Eucalyptus pauciflora Sieber	Eugenia apiculata DC.
snow eucalyptus	shortleaf eugenia
<i>Cylindrocladium scoparium</i>	<i>Asterinella puiggarii</i>
Eucalyptus piperita Sm.	Eugenia caryophyllata Thunb.
Sydney peppermint eucalyptus	clovetree
<i>Fomes conchatus</i>	<i>Asterina assimilis</i>
Eucalyptus regnans F. Muell.	<i>Cryptosporella eugeniae</i>
giant eucalyptus	<i>Cylindrocladium quinqueseptatum</i>
<i>Cylindrocladium scoparium</i>	<i>Glomerella cingulata</i>
<i>Fomes robiniae</i>	<i>Mycosphaerella caryophyllata</i>
<i>Ganoderma applanatum</i>	<i>Valsa eugeniae</i>
<i>Irpea obliquus</i>	Eugenia cumini (L.) Druce jambolan
Eucalyptus resinifera Sm.	<i>Asterina colliculosa</i>
kino eucalyptus	<i>Corticium repens</i>
<i>Cylindrocladium scoparium</i>	<i>Fomes carophylli</i>
Eucalyptus robusta Sm.	<i>Pellicularia koleroga</i>
beakpod eucalyptus	Eugenia dodonaefolia Cambess.
<i>Agrobacterium tumefaciens</i>	_____
<i>Cercospora theae</i>	<i>Phyllachora mulleri</i>
<i>Cylindrocladium scoparium</i>	Eugenia gerrardii (Harv.) Sim
<i>Hypoxyylon mediterraneum</i>	_____
<i>H. sertatum</i>	<i>Armillaria mellea</i>
<i>Macrophomina phaseoli</i>	Eugenia heyneana Duthie
<i>Readeriella mirabilis</i>	<i>Corticium repens</i>
Eucalyptus salicifolia (Sol.) Cav.	Eugenia jambos L. rose-apple
willowleaf eucalyptus	<i>Cryptosporella eugeniae</i>
<i>Physalospora eucalyptorum</i>	<i>Puccinia psidii</i>
Eucalyptus saligna Sm.	<i>Ustilina deusta</i>
Sydney blue eucalyptus	Eugenia javanica Lam.
<i>Cylindrocladium scoparium</i>	<i>Cercospora eugeniae</i>
<i>Fomes robustus</i>	Eugenia latifolia Aubl.
Eucalyptus tereticornis Sm.	<i>Corynebacterium hypertrophicans</i>
horncap eucalyptus	Eugenia luschnathiana Klotzsch
<i>Botrytis cinerea</i>	pitomba
<i>Cylindrocladium scoparium</i>	<i>Elsinoë talisiae</i>
Eucalyptus viminalis Labill.	Eugenia malaccensis L. Malay-apple
ribbon eucalyptus	<i>Puccinia psidii</i>
<i>Cylindrocladium scoparium</i>	Eugenia myrtoides Poir.
<i>Fomes robustus</i>	boxleaf eugenia
<i>F. setulosus</i>	<i>Asterina faucessii</i>
<i>Phytophthora parasitica</i>	Eugenia perpallida Merr.
<i>Polyporus eucalyptorum</i>	<i>Angitia eugeniae</i>
Eucommia ulmoides Oliver	Eugenia pitanga Kiaersk.
<i>Helicobasidium mompa</i>	<i>Elsinoë pitangae</i>
Eugenia sp.	Eugenia puniceaefolia (H. B. K.) DC.
<i>Actinothecium callicola</i>	_____
<i>Asterina lobata</i>	<i>Parastercina mirabilis</i>
<i>A. mandaquiensis</i>	<i>Stomiopeltis eugeniae</i>

Eugenia rhombea (Berg) Krug & Urban	spiceberry eugenia	<i>N. ditissima</i>	
<i>Phyllachora biareolata</i>		<i>N. galligena</i>	
<i>P. eugeniae</i>		<i>Nummularia regia</i>	
Eugenia uniflora L.	pitanga	<i>Pestalotia hartigii</i>	
<i>Cercospora eugeniae</i>		<i>Pholiota adiposa</i>	
Euptelea polyandra Sieb. & Zucc.		<i>P. aurivella</i>	
	Japanese euptelea	<i>Phyllactinia guttata</i>	
<i>Helicobasidium mompa</i>		<i>Phyllosticta fagi</i>	
Excoecaria agallocha L.		<i>P. faginea</i>	
	blinding tree (river-poison)	<i>Phytophthora cactorum</i>	
<i>Skierka agallochoa</i>		<i>P. cambivora</i>	
Fagraea speciosa Blume	—	<i>P. cinnamomi</i>	
<i>Meliola fagraeae</i>		<i>P. syringae</i>	
Fagus sp.	beech	<i>Pleurotus salignus</i>	
<i>Trametes dickinsii</i>		<i>P. ulmarius</i>	
Fagus crenata Blume	Siebold beech	<i>Polyporus adustus</i>	
<i>Fomes annosus</i>		<i>P. cuticularis</i>	
<i>Uncinula curvispora</i>		<i>P. giganteus</i>	
Fagus japonica Maxim.		<i>P. hispidus</i>	
	Japanese beech	<i>P. squamosus</i>	
<i>Cronartium quercuum</i>		<i>P. sulphureus</i>	
<i>Ganoderma applanatum</i>		<i>P. zonatus</i>	
Fagus moesiaca (Maly) Domin	—	<i>Poria obliqua</i>	
<i>Hypoxyylon fragiforme</i>		<i>Quaternaria persoonii</i>	
<i>Schizophyllum commune</i>		<i>Rosellinia quercina</i>	
<i>Stercum purpureum</i>		<i>Schizophyllum commune</i>	
Fagus orientalis Lipsky		<i>Steccherinum septentrionale</i>	
	oriental beech	<i>Stereum hirsutum</i>	
<i>Armillaria mellea</i>		<i>S. purpureum</i>	
<i>Fomes igniarius</i>		<i>Trametes hispida</i>	
Fagus sylvatica L.	European beech	<i>Ustulina deusta</i>	
<i>Actinonema fagicola</i>		<i>Volvaria bombycina</i>	
<i>Armillaria mellea</i>		Faramea occidentalis (L.) A. Rich.	
<i>A. mucida</i>			
<i>Daedalea unicolor</i>		<i>Aecidium farameae</i>	
<i>Discula quercina</i>		Ficus sp.	fig
<i>Endothia parasitica</i>		Virus, mosaic	
<i>Fistulina hepatica</i>		<i>Armillaria mellea</i>	
<i>Fomes annosus</i>		<i>Asterina mysorensis</i>	
<i>F. conchatus</i>		<i>Catacauma robinsonii</i>	
<i>F. connatus</i>		<i>Cerotelium fici</i>	
<i>F. fomentarius</i>		<i>Favolus albus</i>	
<i>F. igniarius</i>		<i>Fomes annularis</i>	
<i>F. pinicola</i>		<i>F. lignosus</i>	
<i>Ganoderma applanatum</i>		<i>Helicobasidium purpureum</i>	
<i>Helicobasidium purpureum</i>		<i>Phomopsis cinerescens</i>	
<i>Herictium erinaceus</i>		<i>Phytophthora palmivora</i>	
<i>Hydnum cirrhatum</i>		<i>Polyporus zonalis</i>	
<i>Hypoxyylon mediterraneum</i>		<i>Scopella fici</i>	
<i>Hysterographium fraxini</i>		<i>Ustulina deusta</i>	
<i>Microsphaera alni</i> var. <i>extensa</i>		Ficus angustifolia Miq.	slimleaf fig
<i>Nectria cinnabarina</i>		<i>Cerotelium fici</i>	
<i>N. coccinea</i>		Ficus asperifolia Hook.	
		<i>Armillaria mellea</i>	

Ficus aurea Nutt. Florida strangler fig	Ficus magnolioides Borzi
<i>Uredo ficina</i>	magnolia fig
Ficus benghalensis L. banyan fig	<i>Cladosporium epiphyllum</i>
<i>Septoria arcuata</i>	Ficus manilensis Warb. Manila fig
Ficus benamina L. Benjamin fig	<i>Phyllachora elmeri</i>
<i>Colletotrichum gloeosporioides</i>	Ficus merrillii Elmer
<i>Ganoderma pseudoferreum</i>	<i>Phyllachora catervaria</i>
<i>Septoria arcuata</i>	Ficus minahassae Miq.
Ficus blepharostoma Warb.	<i>Cerotelium fici</i>
<i>Phyllachora elmeri</i>	<i>Phyllachora elmeri</i>
Ficus capensis Thunb. Cape fig	Ficus nota Merr.
<i>Crossospora fici</i>	<i>Phyllachora pseudos</i>
Ficus carica L. common fig	Ficus odorata Merr.
Virus, mosaic	<i>Cerotelium fici</i>
<i>Armillaria mellea</i>	Ficus padifolia H. B. K. plumleaf fig
<i>Cercospora elasticae</i>	<i>Cerotelium fici</i>
<i>Cerotelium fici</i>	<i>Uredo ficina</i>
<i>Corticium salmonicolor</i>	Ficus radula Willd.
<i>Ganoderma lucidum</i>	<i>Cerotelium fici</i>
<i>Gibberella moricola</i>	Ficus religiosa L. btree fig
<i>Helicobasidium mompa</i>	<i>Cerotelium fici</i>
<i>Phomopsis cinerescens</i>	Ficus retusa L. India-laurel fig
<i>Phytophthora palmivora</i>	<i>Helicobasidium mompa</i>
<i>Pleurotus ostreatus</i>	<i>Phytophthora palmivora</i>
Ficus carica var. <i>sylvestris</i> Nees	Ficus ulmifolia Lam. elmleaf fig
capri fig	<i>Phyllachora elmeri</i>
Virus, mosaic	Ficus vogelii Miq. vogel fig
Ficus combsii Warb.	<i>Corticium salmonicolor</i>
<i>Cerotelium fici</i>	Firmiana platanifolia (L. f.) Schott &
Ficus crassinervia Desf.	Endl. Chinese parasol-tree
<i>Cerotelium fici</i>	<i>Helicobasidium mompa</i>
Ficus elastica Nois.	<i>H. tanakae</i>
India-rubber fig	<i>Phyllactinia guttata</i>
<i>Cercospora elasticae</i>	<i>Uncinula clintonii</i>
<i>Clasterosporium javanicum</i>	Flacourtia indica (Burm. f.) Merr.
<i>Colletotrichum gloeosporioides</i>	ramontchi (governors-plum)
<i>Fusicladium elasticae</i>	<i>Catenulopsora flacourtiiae</i>
<i>Glomerella cingulata</i>	Flacourtia sepiaria Roxb. rukam
<i>Helicobasidium mompa</i>	<i>Catenulopsora flacourtiiae</i>
<i>Septogloeum elasticae</i>	Flindersia brayleyana F. Muell.
Ficus glomerata Roxb. cluster fig	Brayley flindersia
<i>Cerotelium fici</i>	<i>Agrobacterium tumefaciens</i>
Ficus guyeri Elmer	Fluggea microcarpa Blume
<i>Schizochora elmeri</i>	<i>Masseella fluggeae</i>
Ficus hispida L. f. opposite-leaf fig	Fluggea virosa Buch.-Ham.
<i>Phyllachora catervaria</i>	<i>Masseella fluggeae</i>
Ficus ibapohy Orbigny	Fraxinus sp. ash
<i>Cerotelium fici</i>	Virus, mosaic
Ficus indica L. Indian fig	<i>Pseudomonas savastanoi</i>
<i>Septoria arcuata</i>	<i>P. savastanoi</i> var. <i>fraxini</i>
Ficus involuta (Liebm.) Miq.	<i>Armillaria mellea</i>
<i>Uredo ficina</i>	<i>Cercospora lumbricoides</i>
Ficus laevigata Vahl	<i>Collybia velutipes</i>
<i>Cerotelium fici</i>	<i>Fistulina hepatica</i>

Fraxinus sp.	ash	<i>Nectria cinnabarina</i>
(Continued)		<i>N. ditissima</i>
<i>Fomes fomentarius</i>		<i>N. galligena</i>
<i>F. fraxineus</i>		<i>Pestalotia hartigii</i>
<i>F. igniarius</i>		<i>Phyllactinia guttata</i>
<i>F. ulmarius</i>		<i>Polyporus hispidus</i>
<i>Ganoderma applanatum</i>		<i>P. squamosus</i>
<i>Nectria ditissima</i>		<i>P. sulphureus</i>
<i>N. galligena</i>		<i>P. zonatus</i>
<i>Pholiota aurivella</i>		<i>Septoria fraxini</i>
<i>Pleurotus dryinus</i>		<i>S. orni</i>
<i>Polyporus schweinitzii</i>		<i>Venturia fraxini</i>
<i>P. squamosus</i>		Fraxinus longicuspis Sieb. & Zucc.
<i>P. sulphureus</i>		Japanese ash
<i>Stereum purpureum</i>		<i>Uncinula fraxini</i>
<i>Trametes trogii</i>		<i>U. salmoni</i>
<i>Ustulina deusta</i>		Fraxinus longicuspis var. <i>sieboldiana</i>
<i>Venturia fraxini</i>		(Blume) Lingelsh. —
Fraxinus americana L.	white ash	<i>Uncinula salmoni</i>
<i>Pseudomonas savastanoi</i> var. <i>fraxini</i>		Fraxinus mandshurica Rupr.
Fraxinus americana var. <i>juglandifolia</i>		Manchurian ash
D. J. Browne	walnutleaf white ash	<i>Phyllactinia fraxini</i>
<i>Phyllosticta trappenii</i>		<i>P. guttata</i>
Fraxinus angustifolia Vahl		<i>Phytophthora cactorum</i>
	narrowleaf ash	<i>Polyporus hispidus</i>
<i>Pseudomonas savastanoi</i>		Fraxinus nigra Marsh.
<i>P. savastanoi</i> var. <i>fraxini</i>		black ash
Fraxinus bungeana A. DC.	Bunge ash	<i>Polyporus hispidus</i>
<i>Nectria galligena</i>		Fraxinus ornus L.
<i>Phytophthora cactorum</i>		flowering ash
Fraxinus championii Little	—	<i>Diplodia hungarica</i>
<i>Phyllactinia fraxini</i>		<i>Hysterographium fraxini</i>
Fraxinus chinensis Roxb.	Chinese ash	<i>Phyllactinia guttata</i>
<i>Accidium fraxini-bungeanae</i>		<i>Phyllosticta orni</i>
<i>Phyllactinia fraxini</i>		Funtumia africana (Benth.) Stapf.
<i>Uncinula fraxini</i>		African silkcrubber
<i>Uropyxis fraxini</i>		<i>Armillaria mellea</i>
Fraxinus chinensis var. <i>rhynchophylla</i>		<i>Marasmius scandens</i>
(Hance) Hemsl.	—	Funtumia elastica (Preuss) Stapf.
<i>Accidium fraxini-bungeanae</i>		lagos silkcrubber
<i>Uropyxis fraxini</i>		<i>Fomes lamaoensis</i>
Fraxinus excelsior L.	European ash	Garcinia dulcis Kurz
<i>Pseudomonas savastanoi</i>		—
<i>P. savastanoi</i> var. <i>fraxini</i>		<i>Colletotrichum gloeosporioides</i>
<i>Armillaria mellea</i>		Garcinia mangostana L.
<i>Ascochyta metulisporea</i>		mangosteen
<i>Cytospora ambiens</i>		<i>Macrophomina phaseoli</i>
<i>Endoxylina astroidea</i>		<i>Pellicularia koleroga</i>
<i>Fomes annosus</i>		Genipa americana L.
<i>F. connatus</i>		genipa
<i>Ganoderma applanatum</i>		<i>Phyllachora genipae</i>
<i>Helicobasidium purpureum</i>		<i>Sphaeloma genipae</i>
<i>Hysterographium fraxini</i>		Ginkgo biloba L.
		ginkgo (maidenhair-tree)
		<i>Helicobasidium mompa</i>
		<i>Pestalotia funerea</i>
		<i>Phyllosticta ginkgo</i>
		<i>P. salisburyae</i>

Gleditsia sinensis Lam.		Haematoxylon campechianum L.	
Chinese honeylocust		logwood	
<i>Phyllactinia guttata</i>		<i>Cercospora haematoxylonis</i>	
Gleditsia triacanthos L.	honeylocust	<i>Ganoderma lucidum</i>	
Virus, witches'-broom		Hakea myrtioides Meissn.	_____
<i>Phyllosticta triacanthi</i>		<i>Phyllachora hakeae</i>	
<i>Thyronectria austro-americana</i>		Hamamelis japonica Sieb. & Zucc.	
Gmelina arborea Roxb.		Japanese witchhazel	
Malay bushbeech		<i>Accidium hamamelidis</i>	
<i>Poria rhizomorpha</i>		<i>Phyllactinia guttata</i>	
Gmelina philippensis Cham.		Hamelia patens Jacq.	scarletbush
Philippine bushbeech		<i>Uredo hameliae</i>	
<i>Dimerina graffi</i>		Heliocarpus americanus L.	_____
Gourliea spinosa (Molina) Skeels		<i>Puccinia heliocarpi</i>	
_____		Heritiera minor Lam.	_____
<i>Ganoderma lucidum</i>		<i>Fomes robiniae</i>	
Grevillea robusta A. Cunn.	silk-oak	<i>Marasmius equicrinis</i>	
<i>Amphichaeta grevilleae</i>		Heterophragma roxburghii DC.	_____
<i>Armillaria mellea</i>		<i>Phragmidiclla heterophragmae</i>	
<i>Botryosphaeria ribis</i>		Heterostemma angustilobum Schlech-	
<i>Fomes annularis</i>		ter	_____
<i>F. lignosus</i>		<i>Asterina escharoides</i>	
<i>Hexagonia gunnii</i>		Heterotrichum cymosum (Wendl.)	
<i>H. tenuis</i>		Urban	_____
<i>Macrophomina phaseoli</i>		<i>Bagnisiopsis toledoi</i>	
<i>Pestalotia banksiana</i>		Heterotrichum macrodon (Naud.)	
<i>Rhizoctonia lamellifera</i>		Planch.	_____
<i>Rosellinia bunodes</i>		<i>Dimeriellopsis heterotrichi</i>	
Grewia betulaeifolia Juss.	_____	Heterotrichum umbellatum (Mill.)	
<i>Catenulopsora greviae</i>		Urban	_____
Grewia ferruginea Hochst.	_____	<i>Asterina melastomatis</i>	
<i>Dasturella greviae</i>		Hevea sp.	rubbertree
Grewia monticola Sond.	_____	<i>Armillaria mellea</i>	
<i>Dasturella greviae</i>		<i>Colletotrichum gloeosporioides</i>	
Grewia rotundifolia Juss.	_____	<i>Ganoderma lucidum</i>	
<i>Pericladium tiliacearum</i>		<i>G. pseudoferrugineum</i>	
Grewia tiliifolia Vahl	_____	<i>Poria hypobrunnea</i>	
<i>Pericladium tiliacearum</i>		Hevea benthamiana Muell.-Arg.	_____
Grewia villosa Willd.	_____	<i>Catacauma huberi</i>	
<i>Pericladium greviae</i>		<i>Pellicularia filamentosa</i>	
Guatteria sp.	_____	<i>Periconia heveae</i>	
<i>Accidium amazonense</i>		Hevea brasiliensis Muell.-Arg.	
Guatteria alutacea Diels	_____	para rubbertree	
<i>Accidium huallagense</i>		<i>Armillaria mellea</i>	
Guazuma sp.	_____	<i>Ascochyta heveae</i>	
<i>Ganoderma lucidum</i>		<i>A. heveana</i>	
Guazuma ulmifolia Lam.	_____	<i>Asterina tenuissima</i>	
<i>Cercospora guazumae</i>		<i>Calonectria rigidiuscula</i>	
Gymnanthes lucida Sw.	oysterwood	<i>Calostilbe striispora</i>	
<i>Cercospora gymnanthis</i>		<i>Catacauma huberi</i>	
<i>Meliola gymnanthicola</i>		<i>Ceratocystis fimbriata</i>	
		<i>Colletotrichum gloeosporioides</i>	

Hevea brasiliensis Muell.-Arg.		Hevea discolor Muell.-Arg.	_____
(Continued)	para rubber tree	<i>Catacauma huberi</i>	
<i>C. heveae</i>		Hevea guianensis Aubl.	_____
<i>Coniothyrium heveae</i>		<i>Catacauma huberi</i>	
<i>Corticium salmonicolor</i>		<i>Dothidella ulei</i>	
<i>Daldinia concentrica</i>		<i>Oidium heveae</i>	
<i>Didymella heveana</i>		<i>Periconia heveae</i>	
<i>Dothidella ulei</i>		<i>Phyllosticta heveae</i>	
<i>Fomes annularis</i>		Hevea guianensis var. <i>lutea</i> (Spruce)	
<i>F. lamaoensis</i>		Ducke & Schultes	weak rubber
<i>F. ligneus</i>		<i>Dothidella ulei</i>	
<i>F. lignosus</i>		<i>Pellicularia filamentosa</i>	
<i>Fusarium javanicum</i>		Hevea lutea Muell.-Arg.	_____
<i>Ganoderma lucidum</i>		<i>Catacauma huberi</i>	
<i>G. pseudoferreum</i>		<i>Dothidella ulei</i>	
<i>Glomerella cingulata</i>		Hevea paludosa Ule	_____
<i>Helicobasidium compactum</i>		<i>Dothidella ulei</i>	
<i>Helminthosporium heveae</i>		Hevea randiana Hub.	_____
<i>Leptosphaeria heveae</i>		<i>Dothidella ulei</i>	
<i>Macrophomina phaseoli</i>		Hevea spruceana Hub.	_____
<i>Marasmius equicrinis</i>		<i>Dothidella ulei</i>	
<i>Mycosphaerella heveae</i>		<i>Oidium heveae</i>	
<i>M. heveicola</i>		<i>Periconia heveae</i>	
<i>Oidium heveae</i>		Hippophaë rhamnoides L.	
<i>Ophiobolus heveae</i>		common sea-buckthorn	
<i>Pellicularia filamentosa</i>		<i>Coniophora puteana</i>	
<i>P. koleroga</i>		<i>Fomes igniarius</i>	
<i>P. rolfsii</i>		<i>F. robustus</i>	
<i>Periconia heveae</i>		Hirtella triandra Sw.	_____
<i>Phomopsis heveae</i>		<i>Asterina inaequalis</i>	
<i>Phyllosticta heveae</i>		Hoheria populnea A. Cunn.	
<i>Physalospora rhodina</i>		otago ribbonwood	
<i>Phytophthora cactorum</i>		<i>Myxosporium hoheriae</i>	
<i>P. palmivora</i>		Hoheria sexstylosa Coleaso	_____
<i>Polyporus lignosus</i>		<i>Myxosporium hoheriae</i>	
<i>P. zonalis</i>		Holarrhena antidysenterica Wall.	
<i>Poria hypobrunnea</i>		conessi holarrhena	
<i>P. hypolateritia</i>		<i>Hemileia canthii</i>	
<i>Pythium vexans</i>		<i>H. holarrhenae</i>	
<i>Rosellinia bunodes</i>		Holigarna longifolia Roxb.	
<i>Scolecotrichum heveae</i>		black-varnish-tree	
<i>Sphaerostilbe repens</i>		<i>Rosellinia bunodes</i>	
<i>Trametes corrugata</i>		Hopea pierreii Hance	_____
<i>Ustulina deusta</i>		<i>Actinothyrium hopeae</i>	
<i>Xylaria deserticola</i>		Hovenia dulcis Thunb.	
<i>X. thuaitesii</i>		Japanese raisin-tree	
Hevea collina Huber	_____	<i>Microsphaera alni</i>	
<i>Dothidella ulei</i>		Hovenia dulcis var. <i>tomentella</i> Mak.	_____
<i>Oidium heveae</i>		<i>Microsphaera yamadae</i>	
Hevea confusa Hemsl.	_____	Howea belmoreana (F. Muell.) Becc.	
<i>Catacauma huberi</i>		Belmore sentry palm	
<i>Dothidella ulei</i>		<i>Phytophthora palmivora</i>	

Howea forsteriana (F. Muell.) Becc.	Inga laurina (Sw.) Willd.	_____
Forster sentrypalm	<i>Chaconia ingae</i>	
<i>Phytophthora palmivora</i>	<i>Microstroma ingaicola</i>	
Hura crepitans L.	Inga micheliana Harms	_____
<i>Cercospora hurae</i>	<i>Chaconia ingae</i>	
<i>C. huricola</i>	Inga pinetorum Pittier	_____
<i>Cercospora hurae</i>	<i>Chaconia ingae</i>	
<i>Fomes lignosus</i>	Inga preussii Harms	_____
<i>Polyporus zonalis</i>	<i>Chaconia ingae</i>	
Hydnocarpus sp.	<i>Uredo ingae</i>	
<i>Armillaria mellea</i>	Inga spuria Humb. & Bonpl.	_____
Hymenaea courbaril L.	<i>Chaconia ingae</i>	
<i>Uredo hymenaeae</i>	Inga vera Willd.	_____
Ichnocarpus frutescens (L.) R. Br.	<i>Chaconia ingae</i>	
_____	<i>Microstroma ingaicola</i>	
<i>Acervulopsora ichnocarpi</i>	<i>Mycena citricolor</i>	
<i>Corticium repens</i>	<i>Mycosphaerella maculiformis</i>	
Ilex aquifolium L.	<i>Pestalotia funerea</i>	
<i>Phyllosticta aquifolina</i>	<i>Uredo ingae</i>	
<i>P. haynaldii</i>	Intsia bijuga (Coleor.) O. Kuntze	
Ilex azevinho Sol.	_____	common ipil
<i>Phyllosticta azevinhi</i>	<i>Phyllachora afzeliae</i>	
Ilex cymosa Blume	Irvingia malayana Oliv.	_____
<i>Asterina porriginosa</i>	<i>Fomes pectinatus</i>	
Ilex paraguariensis St. Hil.	Jacaranda sp.	jacaranda
_____	<i>Aecidium jacarandae</i>	
Paraguay-tea	<i>A. puttemansianum</i>	
<i>Asterina mate</i>	<i>Armillaria mellea</i>	
<i>Cercospora ilicicola</i>	<i>Meliola gnathonella</i>	
<i>Pellicularia koleroga</i>	<i>Phytophthora cinnamomi</i>	
<i>Phyllosticta yerbae</i>	Jacquinia barbasco (Loefl.) Mez.	_____
Illicium anisatum L.	_____	
Japanese anise-tree	<i>Dimerina jacquiniae</i>	
<i>Gloeosporium illicii</i>	Jacquinia berterii Spreng.	_____
Inga adenophylla Pittier	<i>Phyllachora inclusa</i>	
<i>Chaconia ingae</i>	Juglans sp.	walnut
Inga coriacea (Pers.) Desv. var. leptopus (Benth.) Macbr.	<i>Xanthomonas juglandis</i>	
<i>Chaconia ingae</i>	<i>Armillaria mellea</i>	
<i>Uredo ingae</i>	<i>Gnomonia leptostyla</i>	
Inga edulis Mart.	<i>Helicobasidium tanakae</i>	
<i>Catacauma ingae</i>	<i>Hericium erinaceus</i>	
<i>Chaconia ingae</i>	<i>Nectria cinnabarina</i>	
<i>Physalospora rhodina</i>	<i>N. ditissima</i>	
<i>Uredo ingae</i>	<i>Polyporus hispidus</i>	
Inga fastuosa (Jacq.) Willd.	<i>P. squamosus</i>	
<i>Uredo ingae</i>	<i>P. sulphureus</i>	
Inga ingoides (Rich.) Willd.	Juglans ailantifolia Carr.	
<i>Chaconia ingae</i>	_____	Siebold walnut
Inga inicuil Cham. & Schlecht.	<i>Gnomonia leptostyla</i>	
<i>Chaconia ingae</i>	<i>Helicobasidium mompa</i>	
Inga insignis H. B. K.	<i>Microsphaera yamadai</i>	
<i>Chaconia ingae</i>	<i>Phyllactinia fraxini</i>	
_____	<i>Physalospora juglandis</i>	
<i>Chaconia ingae</i>	<i>Polyporus sulphureus</i>	

Juglans ailantifolia var. cordiformis (Maxim.) Rehd.	Juniperus chinensis L.
flat Siebold walnut	Chinese juniper
<i>Gnomonia leptostyla</i>	<i>Gymnosporangium haraeanaum</i>
Juglans hindsii Jeps.	<i>G. inconspicuum</i>
Hinds walnut	<i>G. yamadæ</i>
<i>Gnomonia leptostyla</i>	Juniperus chinensis f. japonica (Carr.)
Juglans mandshurica Maxim.	Lipa
Manchu walnut	Japanese juniper
<i>Fomes ignarius</i>	<i>Gymnosporangium haraeanaum</i>
Juglans nigra L.	<i>G. inconspicuum</i>
black walnut	<i>G. sabinae</i>
<i>Xanthomonas juglandis</i>	<i>G. yamadæ</i>
<i>Gnomonia leptostyla</i>	<i>Hepotrichia nigra</i>
<i>Phleospora multumaculans</i>	Juniperus chinensis var. sargentii
Juglans regia L.	Henry Sargent Chinese juniper
Persian walnut	<i>Gymnosporangium nipponicum</i>
<i>Agrobacterium tumefaciens</i>	<i>G. yamadæ</i>
<i>Xanthomonas juglandis</i>	Juniperus communis L.
<i>Armillaria mellea</i>	common juniper
<i>Ascochyta juglandis</i>	<i>Armillaria mellea</i>
<i>Cercospora forsteriana</i>	<i>Caliciopsis nigra</i>
<i>Fomes fomentarius</i>	<i>Glausterosporium glomerulosum</i>
<i>F. ignarius</i>	<i>Coniophora puteana</i>
<i>Gnomonia leptostyla</i>	<i>Cytospora cenisia</i>
<i>Melanconis juglandis</i>	<i>Eosporium deflectens</i>
<i>Microsphaera alni</i>	<i>Fusarium oxysporum</i> var. <i>aurantia-</i>
<i>Microstroma juglandis</i>	cum
<i>Mycosphaerella woronowii</i>	<i>Gymnosporangium amelanclieris</i>
<i>Phyllactinia guttata</i>	<i>G. clavariiforme</i>
<i>Phytophthora cambivora</i>	<i>G. cornutum</i>
<i>P. cinnamomi</i>	<i>G. torminali-juniperinum</i>
<i>P. citrophthora</i>	<i>G. tremelloides</i>
<i>P. parasitica</i>	<i>Hepotrichia nigra</i>
<i>Polyporus hispidus</i>	<i>Lophodermium juniperinum</i>
<i>P. squamosus</i>	<i>Tetramyxa rhizophage</i>
<i>P. sulphureus</i>	Juniperus communis var. nipponica
<i>Rosellinia necatrix</i>	(Maxim.) E. H. Wils.
Juglans × sinensis (DC.) Dode	<i>Gymnosporangium cornutum</i>
Chinese walnut	Juniperus communis var. saxatilis Pall.
<i>Gnomonia leptostyla</i>	mountain juniper
Juniperus sp.	<i>Gymnosporangium gäumannii</i>
juniper	<i>Hepotrichia nigra</i>
<i>Armillaria mellea</i>	Juniperus communis var. stricta
<i>Coccodithis sphaeroidea</i>	(Carr.) Rehd.
<i>Didymascella tetraspora</i>	Irish juniper
<i>Eosporium juniperinum</i>	<i>Gymnosporangium clavariiforme</i>
<i>Fomes connatus</i>	Juniperus conferta Parl.
<i>F. roseus</i>	shore juniper
<i>Phomopsis juniperovora</i>	<i>Gymnosporangium shiratanum</i>
Juniperus ashei Buchholz	Juniperus deppeana Steud.
Ashe juniper	<i>Gymnosporangium exiguum</i>
<i>Gymnosporangium speciosum</i>	Juniperus excelsa Bieb.
Juniperus bermudiana L.	Greek juniper
Bermuda redcedar	<i>Fomes demidoffii</i>
<i>Fomes cajanderi</i>	<i>Gymnosporangium sabinae</i>
<i>Gymnosporangium bermudianum</i>	Juniperus foetidissima Willd.
<i>Pestalotia funerea</i>	<i>Gymnosporangium sabinae</i>

Juniperus macropoda Boiss. ———	Juniperus virginiana L.
<i>Fomes demidoffii</i>	eastern redcedar
<i>Gymnosporangium mespili</i>	<i>Cytospora cenisia</i>
Juniperus oxycedrus L.	Kalopanax pictus (Thunb.) Nakai
prickly juniper	—————
<i>Coccododthis sphaeroidea</i>	<i>Phyllactinia guttata</i>
<i>Didymascella tetraspora</i>	Keteleeria evelyniana Mast. ———
<i>Gymnosporangium clavariiforme</i>	<i>Cronartium keteleeriae</i>
<i>G. mespili</i>	Khaya sp. khaya
<i>G. sabinae</i>	<i>Armillaria mellea</i>
<i>Lophodermium juniperinum</i>	Khaya grandifoliola C. DC ———
Juniperus phoenicea L.	<i>Calonectria rigidiuscula</i>
Phoenician juniper	Kiggelaria africana L. ———
<i>Caliciopsis nigra</i>	<i>Fomes robiniae</i>
<i>Gymnosporangium mespili</i>	Koelreuteria bipinnata Franch.
<i>G. sabinae</i>	bougainvillea goldenrain-tree
Juniperus procera Hochst.	<i>Triphragmium koelreuteriae</i>
African juniper	Koelreuteria paniculata Laxm.
<i>Armillaria mellea</i>	panicked goldenrain-tree
<i>Caliciopsis nigra</i>	<i>Xanthomonas acernea</i>
<i>Fomes demidoffii</i>	<i>Triphragmium chinense</i>
<i>Monochaetia unicornis</i>	<i>T. koelreuteriae</i>
<i>Phytophthora cactorum</i>	<i>Verticillium dahliae</i>
<i>Stereum hirsutum</i>	Kolowratia elegans Presl. ———
Juniperus rigida Sieb. & Zucc.	<i>Phragmocauma kolowratiae</i>
needle juniper	Koompassia malaccensis Maing. ———
<i>Gymnosporangium amelanchieris</i>	<i>Fomes lignosus</i>
<i>G. clavariiforme</i>	Laburnum sp. laburnum
<i>G. cornutum</i>	<i>Armillaria mellea</i>
<i>G. idetae</i>	<i>Stereum purpureum</i>
Juniperus sabina L. savin juniper	Laburnum alpinum (Mill.) Bercht. &
<i>Caliciopsis nigra</i>	Presl. Scotch laburnum
<i>Gymnosporangium fusisporum</i>	<i>Stereum purpureum</i>
<i>G. mespili</i>	Laburnum anagyroides Med.
<i>G. sabinae</i>	golden-chain laburnum
<i>Lophodermium juniperinum</i>	<i>Armillaria mellea</i>
<i>Phacidium infestans</i>	<i>Cucurbitaria laburni</i>
Juniperus sabina f. tamariscifolia	<i>Leveillula taurica</i>
(Ait.) Koehne ———	<i>Nectria coccinea</i>
<i>Gymnosporangium sabinae</i>	<i>N. ditissima</i>
Juniperus silicicola (Small) Bailey	<i>Phyllosticta cytisi</i>
southern redcedar	<i>Stereum purpureum</i>
<i>Armillaria mellea</i>	Lagerstroemia speciosa (L.) Pers.
<i>Glomerella cingulata</i>	queen-of-flowers
Juniperus sphaerica Lindl.	<i>Cercospora lythracearum</i>
Fortune juniper	<i>Mollisia ravida</i>
<i>Gymnosporangium sabinae</i>	<i>Omphalia campanella</i>
Juniperus squamata Buch.-Ham.	Lannea woderi (Roxb.) Adelb. ———
singleseed juniper	<i>Cerotelium lanneae</i>
<i>Gymnosporangium formosanum</i>	Lansium domesticum Jack
<i>Lophodermium juniperinum</i>	domestic langsat
<i>Pestalotia funerea</i>	<i>Corticium salmonicolor</i>

Larix sp.	larch	Larix gmelinii (Rupr.) Kuzeneva Dahurian larch
<i>Armillaria mellea</i>		<i>Fomes annosus</i>
<i>Ganoderma lucidum</i>		<i>F. officinalis</i>
<i>Helicobasidium purpureum</i>		<i>F. pini</i>
<i>Lophodermium laricinum</i>		<i>Hypodermella laricis</i>
<i>Melampsorium betulinum</i>		<i>Melampsora larici-tremulae</i>
<i>Myxosporium abietinum</i>		<i>Meria laricis</i>
<i>Polyporus schweinitzii</i>		<i>Pholiota destruens</i>
<i>P. sulphureus</i>		<i>Polyporus schweinitzii</i>
Larix decidua Mill.	European larch	<i>P. sulphureus</i>
<i>Armillaria mellea</i>		Larix gmelinii var. <i>japonica</i> (Reg.) Pilger Kurile Dahurian larch
<i>Ascochyta piniperda</i>		<i>Fomes pini</i>
<i>Cercospora exosporioides</i>		<i>Trichoscyphella willkommii</i>
<i>Cladosporium epiphyllum</i>		Larix gmelinii var. <i>olgensis</i> (Henry) Ostenf. & Syrach-Larsen Korean Dahurian larch
<i>C. laricis</i>		<i>Fomes pini</i>
<i>Coniophora putcana</i>		Larix laricina (Du Roi) K. Koch tamarack
<i>Cytospora abietis</i>		<i>Melampsora larici-tremulae</i>
<i>C. curreyi</i>		Larix leptolepis (Sieb. & Zucc.) Rehd. Japanese larch
<i>Dasyscypha calyciformis</i>		<i>Armillaria mellea</i>
<i>D. subtilissima</i>		<i>Botrytis cinerea</i>
<i>Fomes annosus</i>		<i>Ceratocystis piceae</i>
<i>F. officinalis</i>		<i>Cladosporium epiphyllum</i>
<i>F. pini</i>		<i>Fomes annosus</i>
<i>Fusarium oxysporum</i> var. <i>aurantia-</i> <i>cum</i>		<i>F. officinalis</i>
<i>Helicobasidium purpureum</i>		<i>F. pini</i>
<i>Hypodermella laricis</i>		<i>F. robustus</i>
<i>Hysterographium fraxini</i>		<i>Fusarium oxysporum</i> var. <i>aurantia-</i> <i>cum</i>
<i>Lophodermium laricinum</i>		<i>Melampsora larici-capraearum</i>
<i>Melampsora larici-capraearum</i>		<i>M. larici-populina</i>
<i>M. larici-epitea</i>		<i>M. larici-tremulae</i>
<i>M. larici-pentandrae</i>		<i>Melampsorium betulinum</i>
<i>M. larici-populina</i>		<i>Meria laricis</i>
<i>M. larici-tremulae</i>		<i>Mycosphaerella laricina</i>
<i>M. populnea</i>		<i>Pellicularia filamentosa</i>
<i>Melampsorium alni</i>		<i>Phacidioypcnis pseudotsugae</i>
<i>M. betulinum</i>		<i>Phytophthora cactorum</i>
<i>Meria laricis</i>		<i>Polyporus schweinitzii</i>
<i>Mycosphaerella laricina</i>		<i>P. sulphureus</i>
<i>Nectria cucurbitula</i>		<i>Rhizina undulata</i>
<i>Phacidioypcnis pseudotsugae</i>		<i>Stereum sanguinolentum</i>
<i>Phytophthora cactorum</i>		<i>Trichoscyphella resinaria</i>
<i>Polyporus schweinitzii</i>		<i>T. willkommii</i>
<i>P. sulphureus</i>		Larix ×eurolepis Henry Dunkfeld larch
<i>Rhizina undulata</i>		<i>Fomes annosus</i>
<i>Stereum sanguinolentum</i>		<i>Trichoscyphella willkommii</i>
<i>Trichoscyphella resinaria</i>		Larix occidentalis Nutt. western larch
<i>T. willkommii</i>		<i>Trichoscyphella willkommii</i>
Larix ×eurolepis Henry	Dunkfeld larch	Larix potaninii Batal. Chinese larch
<i>Fomes annosus</i>		<i>Fomes pini</i>
<i>Trichoscyphella willkommii</i>		<i>Polyporus schweinitzii</i>

Larix sibirica Ledeb.	Siberian larch	<i>P. coronopsora</i>	
<i>Armillaria mellea</i>		<i>Uncinula fraxini</i>	
<i>Fomes annosus</i>		Lindera oldhamii Hemsl.	_____
<i>F. igniarius</i>		<i>Cercospora lindericola</i>	
<i>F. officinalis</i>		Lindera umbellata Thunb.	
<i>Hypodermella laricis</i>		umbeled spicebush	
<i>Melampsora larici-capraearum</i>		<i>Microsphaera alni</i>	
<i>M. larici-populina</i>		Lithocarpus sp.	_____
<i>M. larici-tremulae</i>		<i>Trametes dickinsii</i>	
<i>M. populnea</i>		Lithocarpus cuspidata (Thunb.) Nakai	_____
<i>Phacidiopycnis pseudotsugae</i>		<i>Dimerium elegans</i>	
<i>Polyporus squamosus</i>		<i>Irpea tabacinoides</i>	
<i>Trichoscyphella resinaria</i>		<i>Polyporus patouillardii</i>	
<i>T. willkommii</i>		Lithocarpus dealbatus (Hook. f. & Thoms.) Rehd.	_____
Laurus canariensis Webb. & Berth.	_____	<i>Sphaerotheca lanestris</i>	
<i>Exobasidium lauri</i>		Lithocarpus sieboldii (Makino) Nakai	_____
Laurus nobilis L.	Grecian laurel	<i>Polyporus sulphureus</i>	
<i>Exobasidium lauri</i>		Lithocarpus uraianus Hayata	_____
<i>Phyllosticta laurina</i>		<i>Uleomyces decipiens</i>	
Lawsonia inermis L.	henna	Lithraea brasiliensis March.	_____
<i>Xanthomonas lawsoniae</i>		<i>Cercospora phaeochlora</i>	
<i>Asterina lawsoniae</i>		Lithraea caustica (Mol.) Hook. & Arn.	_____
<i>Pellicularia koleroga</i>		<i>Cercospora phaeochlora</i>	
<i>Pestalotia lawsoniae</i>		Litsea sp.	litsea
Leandra cordifolia (Naud.) Cogn.	_____	<i>Kernella lauricola</i>	
<i>Bagnisiopsis leandrae</i>		Litsea angustifolia Blume	_____
Leucadendron argenteum (L.) R. Br.	silver leucadendron	<i>Rosellinia bunodes</i>	
<i>Botryosphaeria ribis</i>		Litsea chrysocoma Blume	_____
Leucaena diversifolia Benth.	_____	<i>Phyllachora laurinearum</i>	
<i>Ravenelia leucaenae</i>		Litsea glutinosa C. B. Robinson	_____
Leucaena esculenta (Mog. & Sessé) Benth.	_____	<i>Cercospora litseae-glutinosae</i>	
<i>Ravenelia leucaenae</i>		Litsea perrottetii Villar	_____
Leucaena glauca (L.) Benth.		<i>Cercospora litseae-glutinosae</i>	
leadtree		Litsea polyantha Juss.	_____
<i>Botryosphaeria ribis</i> var. <i>chromogena</i>		<i>Phyllachora litseae</i>	
<i>Camptomeris leucaenae</i>		Litsea tayabensis Elmer	_____
<i>Corticium salmonicolor</i>		<i>Phyllachora lepida</i>	
<i>Fomes lamaoensis</i>		Litsea tetranthera Mirb.	_____
<i>F. lignosus</i>		<i>Phyllachora laurinearum</i>	
<i>Ganoderma lucidum</i>		Litsea wightiana Benth. & Hook. f.	_____
<i>Helicobasidium compactum</i>		<i>Rosellinia bunodes</i>	
<i>Rhizoctonia choussii</i>		Livistona cochinchinensis Blume	
<i>Rosellinia arcuata</i>		Malayan fanpalm	
<i>R. bunodes</i>		<i>Fomes lignosus</i>	
<i>Ustulina deusta</i>		Livistona rotundifolia Mart.	
<i>Verticillium albo-atrum</i>		Java fanpalm	
Lindera sp.	spicebush	<i>Phytophthora palmivora</i>	
<i>Phyllactinia guttata</i>			
<i>Puccinia aequitatis</i>			

Lonchocarpus sp. lancepod	Machaerium humboldtianum Vogel
<i>Meliola lonchocarpicola</i>	
Lonchocarpus chrysophyllus Kleinh.	<i>Catacauma venezuelensis</i>
	<i>Phyllachora machaeriticola</i>
<i>Cercospora lonchocarpi</i>	<i>Uredo pusilla</i>
Lonchocarpus nicou (Aubl.) DC	Machaerium moritzianum Benth.
<i>Cercospora lonchocarpi</i>	<i>Catacauma venezuelensis</i>
<i>Dicheirinia archeri</i>	<i>Phyllachora machaeriticola</i>
<i>D. guianensis</i>	Machaerium robiniaefolium Vogel
Lonchocarpus sericeus (Poir.) H. B. K.	
	<i>Catacauma venezuelensis</i>
<i>Fomes lignosus</i>	<i>Phyllachora machaeriticola</i>
Lonchocarpus urucu Killip & A. C. Smith	Machilus sp.
	<i>Aecidium machili</i>
<i>Cercospora lonchocarpi</i>	Machilus bournei Hemsl.
<i>Dicheirinia archeri</i>	<i>Aecidium machili</i>
Lonchocarpus utilis A. C. Smith	Machilus longipaniculata Hayata
<i>Cephalosporium deformans</i>	
<i>Cercospora lonchocarpi</i>	<i>Aecidium machili</i>
<i>Dicheirinia archeri</i>	<i>Fomes lamaoensis</i>
<i>Pellicularia filamentosa</i>	Machilus thunbergii Sieb. & Zucc.
Lophira alata Banks winged lophira	
<i>Fomes lignosus</i>	
Lophopetalum toxicum Loher	<i>Aecidium machili</i>
<i>Asterina lophopetali</i>	Maclura pomifera (Raf.) Schneid.
Lysiloma acapulcensis (Kunth.) Benth.	Osage-orange
	<i>Septoria macluræ</i>
<i>Ravenelia sololensis</i>	<i>Uredo macluræ</i>
Lysiloma bahamensis Benth.	Maclura ucora (?)
Bahama lysiloma	<i>Uredo macluræ</i>
<i>Ravenelia lysilomæ</i>	Madhuca bourdillonii (Gamble) H. J. Lam.
Lysiloma tergemina Benth.	<i>Scopella echinulata</i>
<i>Ravenelia lysilomæ</i>	Madhuca indica J. F. Gmel.
Maackia amurensis Rupr. & Maxim.	illipe butternut
Amur maackia	<i>Fomes caryophylli</i>
<i>Uromyces amurensis</i>	<i>Scopella echinulata</i>
Maackia amurensis var. <i>buergeri</i>	Madhuca longifolia (L.) Macbride
(Maxim.) Schneid.	mowra butternut
Japanese maackia	<i>Scopella echinulata</i>
<i>Uromyces amurensis</i>	Maesa denticulata Mez
Maba abyssinica Hiern.	<i>Amazonia peregrina</i>
<i>Ascochyta mabiana</i>	Maesa elmeri Mez
Maba natalensis Harv. Natal ebony	<i>Amazonia peregrina</i>
<i>Aecidium bicolor</i>	Maesa formosana Mez
Macaranga sp.	<i>Fomes lamaoensis</i>
<i>Skierka congouensis</i>	Maesa laxa Mez
Machaerium sp.	<i>Amazonia peregrina</i>
<i>Catacauma hammari</i>	Magnolia sp. magnolia
<i>Uredo machaeritii</i>	<i>Nectria cinnabarina</i>
Machaerium acutifolium Vogel	
<i>Catacauma venezuelensis</i>	

Magnolia denudata Desrouss.		<i>Physalospora perseae</i>	
	yulan magnolia	<i>P. rhodina</i>	
<i>Phyllactinia guttata</i>		<i>Phytophthora palmivora</i>	
<i>Phyllosticta yulan</i>		<i>Polyporus zonalis</i>	
Magnolia kobus DC.	kobus magnolia	<i>Schizophyllum commune</i>	
<i>Phyllactinia fraxini</i>		<i>Sclerotium delphinii</i>	
<i>P. guttata</i>		Maprounea sp.	_____
Magnolia obovata Thunb.		<i>Aecidium maprouneae</i>	
	whiteleaf Japanese magnolia	Maprounea <i>surinamensis</i> (?)	_____
<i>Ceratocystis piceae</i>		<i>Phyllachora maprouneae</i>	
<i>Phyllactinia fraxini</i>		Markhamia <i>sansibarica</i> (Bojer) K.	_____
Magnolia stellata (Sieb. & Zucc.)		Schum.	_____
Maxim.	star magnolia	<i>Phragmidiella markhamiae</i>	
<i>Phyllactinia fraxini</i>		Marlierea <i>edulis</i> Niedenzu	_____
Mallotus sp.	_____	<i>Puccinia psidii</i>	
<i>Crossospora malloti</i>		Melaleuca <i>decussata</i> R. Br.	
<i>Phakopsora malloti</i>			lilac melaleuca
Mallotus japonicus (Thunb.) Muell.-		<i>Fomes robustus</i>	
Arg.	_____	Melaleuca <i>leucadendron</i> L.	
<i>Erysiphe cichoracearum</i>			cajeput-tree
<i>Gymnosporangium malloti</i>		<i>Fomes lignosus</i>	
<i>Helicobasidium mompa</i>		<i>Phyllosticta leucadendri</i>	
Mallotus philippinensis (Lam.) Muell.-		<i>Puccinia camargoi</i>	
Arg.	kamala-tree	Melaleuca <i>pubescens</i> Schau.	_____
<i>Fomes setulosus</i>		<i>Fomes robiniae</i>	
<i>Ganoderma applanatum</i>		Melanolepis <i>multiglandulosa</i> (Blume)	
Mallotus ricinoides (Pers.) Muell.-Arg.	_____	Reichb. f. & Zoll.	_____
		<i>Cronartium malloti</i>	
<i>Polyporus zonalis</i>		<i>Uromyces malloti</i>	
Mammea americana L.	mammee-apple	Melia <i>azadirachta</i> L.	margosa
<i>Meliola paullinae</i>		<i>Cercospora subsessilis</i>	
Mangifera caesia Jack.	binjai	<i>Ganoderma lucidum</i>	
<i>Cronartium kemangae</i>		Melia <i>azedarach</i> L.	chinaberry
Mangifera indica L.	mango	<i>Cercospora meliae</i>	
<i>Erwinia mangiferae</i>		<i>C. subsessilis</i>	
<i>Pseudomonas mangiferae-indicae</i>		<i>Fomes conchatus</i>	
<i>Armillaria mellea</i>		<i>F. lamaoensis</i>	
<i>Ascochyta mangiferae</i>		<i>F. senecæ</i>	
<i>Botryosphaeria ribis</i> var. <i>chromogena</i>		<i>Ganoderma pseudoferreum</i>	
<i>Ceratocystis paradoxa</i>		<i>Gloeosporium meliicola</i>	
<i>Colletotrichum gloeosporioides</i>		<i>Phyllactinia guttata</i>	
<i>Didymella mangiferae</i>		<i>Phytophthora citrophthora</i>	
<i>Diplodia recifensis</i>		<i>P. parasitica</i>	
<i>Erysiphe cichoracearum</i>		<i>Pseudoperonospora portoricensis</i>	
<i>E. polygoni</i>		<i>Septoria meliae</i>	
<i>Fomes annularis</i>		Melia <i>dubia</i> Cav.	_____
<i>F. lignosus</i>		<i>Armillaria mellea</i>	
<i>Glomerella cingulata</i>		Meliosma <i>cuneifolia</i> Franch.	_____
<i>Meliola mangiferae</i>		<i>Aecidium meliosmae-pungentis</i>	
<i>Mycena citricolor</i>		Meliosma <i>myriantha</i> Sieb. & Zucc.	_____
<i>Oidium mangiferae</i>			
<i>Pellicularia koleroga</i>		<i>Aecidium meliosmae-myrianthae</i>	
<i>Pestalotia funerea</i>		<i>Helicobasidium mompa</i>	

Meliosma oldhamii Miq. ———	Miconia granulosa (Bonpl.) Naud. ———
<i>Aecidium meliosmae-myrianthae</i>	
Meliosma parviflora Lecomte ———	<i>Bagnisiopsis amadelpha</i> ———
<i>Aecidium meliosmae-myrianthae</i>	Miconia ibaguensis (Bonpl.) Triana ———
Melocanna baccifera (Roxb.) Kurz ———	<i>Cercospora mirandensis</i> ———
<i>Portia rhizomorpha</i>	Miconia impetiolaris (Sw.) D. Don ———
Memecylon umbellatum Kostel. ———	<i>Irene melastomacearum</i> ———
<i>Aecidium memecyli</i>	<i>Septoria miconiae</i> ———
Metasequoia glyptostroboides Hu & Cheng ———	Miconia laevigata (L.) DC. ———
<i>Botrytis cinerea</i>	<i>Bagnisiopsis peribebuyensis</i> ———
Metrosideros villosa Sm. ———	<i>B. toledo</i> ———
<i>Phyllosticta metrosideri</i>	<i>Irene melastomacearum</i> ———
Michelia fuscata (Andr.) Blume ———	<i>Septoria miconiae</i> ———
banana-shrub	Miconia lepidota DC. ———
<i>Corticium salmonicolor</i>	<i>Bagnisiopsis tijucensis</i> ———
Miconia sp. ———	Miconia macrophylla (D. Don) Triana ———
<i>Asterina melastomatis</i>	<i>Bagnisiopsis peribebuyensis</i> ———
<i>A. miconiae</i>	<i>B. tijucensis</i> ———
<i>Bagnisiopsis leandrae</i>	<i>B. toledo</i> ———
<i>B. tijucensis</i>	Miconia milleflora Naud. ———
<i>Catacaumella miconiae</i>	<i>Asterina antioquiensis</i> ———
<i>Dothidina peribebuyensis</i>	<i>Cronartium egenulum</i> ———
<i>Guignardia atropurpurea</i>	Miconia minutiflora DC. ———
<i>G. punctiformis</i>	<i>Bagnisiopsis tijucensis</i> ———
<i>Lembosia melastomatum</i>	Miconia prasina (Sw.) DC. ———
<i>Parasterina venezuelana</i>	<i>Asterina carbonacea</i> ———
<i>Phyllachora miconicola</i>	<i>A. chrysophylli</i> ———
Miconia aeruginosa Naud. ———	<i>Bagnisiopsis peribebuyensis</i> ———
<i>Parasterina miconiae</i>	<i>B. toledo</i> ———
<i>P. montagnei</i>	<i>Irene melastomacearum</i> ———
Miconia ambigua DC. ———	Miconia racemosa (Aubl.) DC. ———
<i>Bagnisiopsis peribebuyensis</i>	<i>Asterina spathulata</i> ———
Miconia argentea DC. ———	<i>Irene melastomacearum</i> ———
<i>Bagnisiopsis peribebuyensis</i>	Miconia rubiginosa (Bonpl.) DC. ———
Miconia beurlingii Triana ———	<i>Catacaumella miconiae</i> ———
<i>Bagnisiopsis peribebuyensis</i>	Miconia squamulosa Triana ———
Miconia candolleana Triana ———	<i>Bagnisiopsis miconicola</i> ———
<i>Bagnisiopsis peribebuyensis</i>	Miconia stenostachya (Schr. & Mart.) DC. ———
Miconia caudata DC. ———	<i>Lembosia miconicola</i> ———
<i>Bagnisiopsis amadelpha</i>	Miconia thomasiana DC. ———
Miconia ciliata DC. ———	<i>Asterina spathulata</i> ———
<i>Asterina antioquiensis</i>	Miconia toroi Gleason ———
<i>A. uribei</i>	<i>Asterina uribei</i> ———
Miconia flammea Casar. ———	Miconia ulmarioides Naud. ———
<i>Bagnisiopsis tijucensis</i>	<i>Bagnisiopsis tijucensis</i> ———
Miconia furfuracea Griseb. ———	Miconia versicolor Naud. ———
<i>Bagnisiopsis amadelpha</i>	<i>Bagnisiopsis peribebuyensis</i> ———
Miconia grandifolia D. Don ———	
<i>Bagnisiopsis toledo</i>	

Morinda tinctoria Roxb.

Cercospora morindae
Morus sp.

mulberry

Virus, mosaic

Agrobacterium tumefaciens
Pseudomonas mori
Aecidium mori
Armillaria mellea
Cercospora mori
Cerotelium fici
Claudopus nidulans
Fomes fomentarius
F. senex
Ganoderma applanatum
Gibberella moricola
Helicobasidium tanakae
Mycosphaerella mori
Nectria cinnabarina
Phyllactinia guttata
Polyporus hispidus
Rosellinia aquila
R. necatrix
Thyrococcum sirakoffii
Morus alba L.

white mulberry

Virus, mosaic

Pseudomonas mori
Aecidium mori
Ascochyta morifolia
Botrytis cinerea
Cercospora moricola
Cerotelium fici
Ciboria shiraiana
Clasterosporium mori
Coryneum mori
Cylindrosporium maculans
Cytodiplospora mori
Cytospora ambiens
C. atra
Daedalea unicolor
Diplodia morina
Fomes robiniae
Fusarium lateritium
Ganoderma lucidum
Gibberella lateritia
G. moricola
Helicobasidium mompa
H. purpureum
H. tanakae
Kuehneola moricola
Macrophomina phaseoli
Mycosphaerella mori
Nectria cinnabarina
Phyllactinia guttata
P. moricola
Phyllosticta kuwacola
Polyporus hispidus
P. squamosus
Sclerotinia sclerotiorum
Sphaeropsis mori
Uncinula mori
Morus alba var. *multicaulis* (Perrottet)

Loud. silkworm mulberry

Phyllactinia moricola
Morus argutidens Koidz.

Phyllactinia moricola
Morus australis Poir.

Japanese mulberry

Pseudomonas mori
Aecidium mori
Ciboria shiraiana
Corticium salmonicolor
Gibberella moricola
Helicobasidium mompa
Phyllactinia guttata
P. moricola
Morus indica L.

Pseudomonas mori
Aecidium mori
Corticium salmonicolor
Mycosphaerella mori
Morus insignis Bur.

Cerotelium fici
Morus kagayamae Koidz.

Pseudomonas mori
Morus nigra L. black mulberry

Pseudomonas mori
Auricularia auricularis
Mycosphaerella mori
Morus serrata Roxb.

Aecidium mori
Murraya koenigii (L.) Spreng.

curryleaf-tree

Cylindrosporium koenigii
Pellicularia filamentosa
Phyllostictina murrayae
Murraya paniculata (L.) Jack

Chinabox jasmine-orange

Fomes lamaoensis
Musanga smithii R. Br.

Fomes lignosus
Myristica sp. nutmeg

Ganoderma pseudosferreum

Myristica fragrans Houtt.		Nothofagus antarctica var. bicrenata	
common nutmeg		Macloskie	_____
<i>Coryneum myristicae</i>		<i>Taphrina entomospora</i>	
<i>Eutypa erumpens</i>		<i>Uncinula magellanica</i>	
<i>Fomes lamaoensis</i>		<i>U. nothofagi</i>	
<i>Physalospora abdita</i>		Nothofagus antarctica var. uliginosa	
Myrsine sp.	_____	(DC.) Reiche	_____
<i>Coryneliospora fructicola</i>		<i>Taphrina entomospora</i>	
Myrsine africana L.	_____	Nothofagus betuloides (Mirb.) Oerst.	
<i>Corynelia fructicola</i>			_____
<i>Coryneliospora fructicola</i>		<i>Cyttaria darwinii</i>	
Myrsine melanophleos R. Br.	_____	<i>C. harioti</i>	
<i>Corynelia fructicola</i>		<i>C. hookeri</i>	
Myrtus communis L.	true myrtle	Nothofagus cunninghamii (Hook.)	
<i>Ascochyta myrticola</i>		Oerst.	Tasmania falsebeech
<i>Cercospora myrticola</i>		<i>Cyttaria gunnii</i>	
Myrtus divaricata (Berg.) Ham.		Nothofagus dombeyi (Mirb.) Oerst.	
	_____	southern falsebeech	
<i>Cercospora myrticola</i>		<i>Bondarzewia pernicioso</i>	
Nectandra sp.	_____	<i>Cyttaria harioti</i>	
<i>Irene glabroides</i>		<i>C. hookeri</i>	
Nectandra amara Nees	_____	Nothofagus fusca (Hook. f.) Oerst.	
<i>Aecidium mulleri</i>		black falsebeech	
Nectandra coriacea (Sw.) Griseb.		<i>Cyttaria gunnii</i>	
Jamaica nectandra		<i>Fomes robustus</i>	
<i>Phyllachora nectandrae</i>		Nothofagus glauca (Phil.) Espinosa	
Nectandra glabrescens Benth.	_____	<i>Cyttaria berterii</i>	
<i>Phyllachora litseae</i>		Nothofagus menziesii (Hook. f.) Oerst.	
Nectandra nitidula Nees & Mart.		silver falsebeech	
	_____	<i>Armillaria mellea</i>	
<i>Drepanoconis larviformis</i>		<i>Cyttaria gunnii</i>	
Nectandra oppositifolia Nees & Mart.		<i>Fomes robustus</i>	
	_____	Nothofagus moorei (F. Muell.) Maiden	
<i>Aecidium nectandrae</i>		negrohead falsebeech	
Nectandra patens (Sw.) Griseb.		<i>Cyttaria gunnii</i>	
	_____	<i>C. septentrionalis</i>	
<i>Irene glabroides</i>		Nothofagus nitida (Phil.) Reiche	
<i>Phyllachora nectandrae</i>			_____
Nectandra puberula Nees	_____	<i>Cyttaria harioti</i>	
<i>Drepanoconis larviformis</i>		Nothofagus obliqua (Mirb.) Oerst.	
Nectandra sinuata Mez	_____		_____
<i>Phytophthora cinnamomi</i>		<i>Cyttaria berterii</i>	
Nectandra tweediei (Meissn.) Mez		<i>C. espinosae</i>	
	_____	<i>C. reichei</i>	
<i>Climoconidium farinosum</i>		<i>Micronegeria fagi</i>	
<i>Drepanoconis larviformis</i>		<i>Mycosphaerella nothofagi</i>	
Newbouldia laevis Seem.		Nothofagus obliqua var. macrocarpa	
<i>Calonectria rigidiuscula</i>		Reiche	_____
Nothofagus antarctica (Forst.) Oerst.		<i>Cyttaria berterii</i>	
Antarctic falsebeech		Nothofagus procera (Poepp. & Endl.)	
<i>Cyttaria darwinii</i>		Oerst.	_____
<i>C. harioti</i>		<i>Cyttaria espinosae</i>	
<i>C. hookeri</i>			

<i>Micronegeria fagi</i>		<i>Olearia axillaris</i> F. Muell.	_____
<i>Mycosphaerella nothofagi</i>		<i>Aecidium oleariae</i>	
<i>Nothofagus pumilio</i> (Poepp. & Endl.)		<i>Oncosperma filamentosum</i> Blume	
Reiche	_____		nibong palm
<i>Cyttaria darwinii</i>		<i>Fomes lignosus</i>	
<i>C. harioti</i>		<i>Opilia amentacea</i> Roxb.	_____
<i>C. hookeri</i>		<i>Asterina crebra</i>	
<i>Nothopanax fruticosus</i> (L.) Harms	_____	<i>Opuntia aurantiaca</i> Lindl.	
			orange-red pricklypear
<i>Helicobasidium purpureum</i>		<i>Gloeosporium lunatum</i>	
<i>Nothopegia colebrookiana</i> (Wight)	_____	<i>Opuntia ficus-indica</i> Mill.	Indian-fig
Blume	_____	<i>Bacillus cacticidus</i>	
<i>Asterina nothopegiae</i>		<i>Opuntia stricta</i> Haw.	_____
<i>Ochroma pyramidale</i> (Cav.) Urban		<i>Gloeosporium lunatum</i>	
	balsa	<i>Opuntia tomentella</i> Berger	_____
<i>Fomes lignosus</i>		<i>Bacillus cacticidus</i>	
<i>Macrophomina phaseoli</i>		<i>Opuntia vulgaris</i> Mill.	
<i>Ocotea</i> sp.	_____		common pricklypear
<i>Phyllachora ocoteicola</i>		<i>Gloeosporium lunatum</i>	
<i>Ocotea architectorum</i> Mez	_____	<i>Oroxylum indicum</i> Vent.	
<i>Phytophthora cinnamomi</i>			India trumpetflower
<i>Ocotea bullata</i> E. Mey.		<i>Corticium repens</i>	
	stinkwood ocotea	<i>Osmanthus fragrans</i> Lour.	
<i>Fomes ligneus</i>			sweet osmanthus
<i>F. ulmarius</i>		<i>Aecidium osmanthi</i>	
<i>Ocotea leucoxylo</i> (Sw.) Maza	_____	<i>Ostrya carpinifolia</i> Scop.	
<i>Catacauma ocoteae</i>			European hophornbeam
<i>Climoconidium farinosum</i>		<i>Taphrina ostryae</i>	
<i>Phyllachora ocoteicola</i>		<i>Ostrya virginiana</i> (Mill.) K. Koch var.	
<i>Uredo farinosa</i>		<i>guatemalensis</i> (Winkl.) Macbride	_____
<i>Ocotea pulchella</i> Mart.	_____		
<i>Botryconis pallida</i>		<i>Melampsoridium carpinii</i>	
<i>Olea</i> sp.	olive	<i>Pachira insignis</i> Savigny	
<i>Fomes linteus</i>			Trinidad pachira
<i>Phytophthora cinnamomi</i>		<i>Cercospora pachirae</i>	
<i>Olea dioica</i> Roxb.	_____	<i>Pachira oleagina</i> Decne.	_____
<i>Cystospora oleae</i>		Virus, swollen shoot	
<i>Olea europaea</i> L.	common olive	<i>Palaquium</i> sp.	nota-tree
<i>Fomes linteus</i>		<i>Scopella palaquii</i>	
<i>Olea laurifolia</i> Lam.	_____	<i>Palaquium oblongifolium</i> Burek	_____
<i>Asterodothis solaris</i>			
<i>Fomes robiniae</i>		<i>Colletotrichum gloeosporioides</i>	
<i>F. robustus</i>		<i>Corticium salmonicolor</i>	
<i>Ganoderma applanatum</i>		<i>Fomes lignosus</i>	
<i>G. lucidum</i>		<i>Ganoderma pseudoferreum</i>	
<i>Pellicularia filamentosa</i>		<i>Parashorea malaanonan</i> (Blanco)	
<i>Pestalotia hartigii</i>		Merr.	common bagtikan
<i>Olea verrucosa</i> Link	warty olive	<i>Fomes annularis</i>	
<i>Ganoderma lucidum</i>		<i>Parashorea plicata</i> Brandis	_____
<i>Olearia</i> (sp.)	daisybush	<i>Ganoderma lucidum</i>	
<i>Corbulospora clemensiae</i>		<i>Parinarium mobola</i> Oliver	
<i>C. gravida</i>			mobola-plum
<i>Olearia argophylla</i> F. Muell.		<i>Armillaria mellea</i>	
	musktree daisybush		
<i>Irpex zonatus</i>			

Parkia javanica (Lam.) Merr.		<i>Sphaceloma perseae</i>	
	Java nittatree	<i>Trachysphaera fructigena</i>	
<i>Auricularia polytricha</i>		Persea petiolaris H. B. K.	—
<i>Fomes annularis</i>		<i>Meliola antioquiensis</i>	
<i>Phyllachora parkiae</i>		Persea schiedeana Nees	coyo avocado
Parkia roxburghii G. Don		<i>Phytophthora cinnamomi</i>	
	Roxburgh nittatree	Petitia domingensis Jacq.	capá blanco
<i>Ganoderma pseudoferreum</i>		<i>Olivea petitiae</i>	
Paulownia coreana Uyeki	—	<i>Septoria petitiae</i>	
<i>Gloeosporium kawakamii</i>		Peumus boldus Molina	boldu-tree
Paulownia tomentosa (Thunb.) Sieb. & Zucc.	royal paulownia	<i>Herpotrichia boldoae</i>	
<i>Virus, witches'-broom</i>		Phellodendron amurense Rupr.	
<i>Armillaria mellea</i>			Amur corktree
<i>Ascochyta paulowniae</i>		<i>Ascochyta phellodendri</i>	
<i>Cercospora paulowniae</i>		<i>Coleosporium phellodendri</i>	
<i>Gloeosporium kawakamii</i>		Phellodendron lavallei Dode	
<i>Glomerella cingulata</i>			Lavalle corktree
<i>Helicobasidium mompa</i>		<i>Coleosporium phellodendri</i>	
<i>H. tanakae</i>		Phellodendron sachalinense (Fr. Schmidt) Sarg.	Sakhalin corktree
<i>Mycosphaerella paulowniae</i>		<i>Coleosporium phellodendri</i>	
<i>Phyllactinia guttata</i>		Phillyrea sp.	—
<i>P. salmonii</i>		<i>Zaghouania phillyreae</i>	
<i>Phyllosticta paulowniae</i>		Phillyrea angustifolia L.	
<i>Uncinula clintonii</i>			narrowleaf phillyrea
<i>Valsa paulowniae</i>		<i>Zaghouania phillyreae</i>	
Pavetta indica L.	—	Phoebe formosana (Hayata) Hayata	
<i>Aecidium flavidum</i>			Formosa phoebe
Peltophorum inerme (Roxb.) Naves	—	<i>Aecidium machili</i>	
		Phoebe paniculata Nees	
<i>Ganoderma pseudoferreum</i>			panicled phoebe
Pentaclethra macroloba (Willd.) Kuntze	—	<i>Kernella lauricola</i>	
<i>Meliola conigera</i>		Phoebe wightii Meissn.	—
Pentaclethra macrophylla Benth.	—	<i>Kernella lauricola</i>	
		Phoenix sp.	date
<i>Fomes lignosus</i>		<i>Graphiola phoenicis</i>	
Persea americana Mill.	avocado	Phoenix canariensis Chabaud	
<i>Armillaria mellea</i>			canary date
<i>Colletotrichum gloeosporioides</i>		<i>Ceratocystis paradoxa</i>	
<i>Glomerella cingulata</i>		<i>Exosporium palmivorum</i>	
<i>Macrophomina phaseoli</i>		<i>Graphiola phoenicis</i>	
<i>Mycosphaerella perseae</i>		<i>Pestalotia palmarum</i>	
<i>Pellicularia rolfsii</i>		Phoenix dactylifera L.	date
<i>Phyllachora gratissima</i>		<i>Ceratocystis paradoxa</i>	
<i>Physalospora perseae</i>		<i>Fusarium albedinis</i>	
<i>P. rhodina</i>		<i>Graphiola phoenicis</i>	
<i>Phytophthora cactorum</i>		<i>Mauginiella scaetiae</i>	
<i>P. cinnamomi</i>		Phoenix hanceana var. formosana Becc.	
<i>P. palmivora</i>			Hance date
<i>Rosellinia bunodes</i>		<i>Graphiola phoenicis</i>	

Phoenix paludosa Roxb.			<i>Cladosporium herbarum</i>
	Malayan date		<i>Cytospora curreyi</i>
<i>Graphiola phoenicis</i>			<i>Fomes pinicola</i>
Phoenix reclinata Jacq.	Senegal date		<i>F. robustus</i>
<i>Pestalotia palmarum</i>			<i>F. roseus</i>
Phoenix sylvestris Roxb.	sugar date		<i>Ganoderma lucidum</i>
<i>Graphiola applanata</i>			<i>Lophodermium macrosporum</i>
<i>G. phoenicis</i>			<i>Polyporus schweinitzii</i>
<i>Pestalotia palmarum</i>			<i>P. sulphureus</i>
Photinia amphidoxa (Schneid.) Rehd.			<i>Rosellinia aquila</i>
& Wilson	bigfruit photinia		<i>Thelephora terrestris</i>
<i>Gymnosporangium inconspicuum</i>			Picea abies (L.) Karst.
Photinia glabra (Thunb.) Maxim.		Norway spruce	
	Japanese photinia		Virus, mosaic
<i>Helicobasidium mompa</i>			<i>Acanthostigma parasiticum</i>
Photinia parvifolia (Pritz.) Schneid.			<i>Armillaria mellea</i>
	littleleaf photinia		<i>Ascochyta piniperda</i>
<i>Gymnosporangium inconspicuum</i>			<i>Botrytis cinerea</i>
Photinia villosa (Thunb.) DC.			<i>Ceratocystis coerulescens</i>
	oriental photinia		<i>C. piceae</i>
<i>Gymnosporangium inconspicuum</i>			<i>C. tetropii</i>
Photinia villosa var. <i>laevis</i> (Thunb.)			<i>Chrysomyxa abietis</i>
Dipp.			<i>C. ledi</i> var. <i>ledi</i>
<i>Gymnosporangium inconspicuum</i>			<i>C. ledi</i> var. <i>rhododendri</i>
Phyllostachys sp.	bamboo		<i>C. pirolata</i>
<i>Coccidiella arundinariae</i>			<i>C. woronini</i>
<i>Loculistroma bambusae</i>			<i>Coniophora olivacea</i>
<i>Puccinia longicornis</i>			<i>C. puteana</i>
Phyllostachys bambusoides Sieb. &			<i>Corticium odoratum</i>
Zucc.	Japanese timber bamboo		<i>Cucurbitaria piceae</i>
<i>Aciculosporium take</i>			<i>C. pithyophila</i>
<i>Asterinella hiugensis</i>			<i>Daedalea unicolor</i>
<i>Colletotrichum hsienjenchang</i>			<i>Dasyscypha abietis</i>
<i>Mycosphaerella bambusifolia</i>			<i>D. calyciformis</i>
<i>Puccinia phyllostachydis</i>			<i>D. subtilissima</i>
<i>Stereostrium corticioides</i>			<i>Fomes annosus</i>
Phyllostachys nigra (Lodd.) Munro			<i>F. pini</i>
	black bamboo		<i>F. pinicola</i>
<i>Aciculosporium take</i>			<i>F. robustus</i>
Phyllostachys nigra var. <i>henonis</i>			<i>Fusarium bulbigenum</i> var. <i>blasticola</i>
(Mitf.) Stapf.	Henon bamboo		<i>Ganoderma applanatum</i>
<i>Aciculosporium take</i>			<i>G. lucidum</i>
<i>Colletotrichum hsienjenchang</i>			<i>Helicobasidium mompa</i>
<i>Mycosphaerella bambusifolia</i>			<i>H. purpureum</i>
<i>Puccinia phyllostachydis</i>			<i>Herpotrichia nigra</i>
<i>Shiraia bambusicola</i>			<i>Hysterographium fragrant</i>
<i>Stereostrium corticioides</i>			<i>Lophodermium macrosporum</i>
Picea sp.	spruce		<i>L. piceae</i>
<i>Acanthostigma parasitica</i>			<i>Nectria cucurbitula</i>
<i>Ascochyta piniperda</i>			<i>Pellicularia filamentosa</i>
<i>Botrytis cinerea</i>			<i>Pestalotia hartigii</i>
<i>Ceratocystis coerulescens</i>			<i>Pezicula livida</i>
<i>C. piceae</i>			<i>Phacidiopycnis pseudotsugae</i>
<i>Chrysomyxa ledi</i> var. <i>ledi</i>			<i>Phacidium infestans</i>

Picea abies (L.), Karst.

(Continued) Norway spruce

Phytophthora cactorum
Pleurotus mitis
Polyporus adustus
P. borealis
P. mollis
P. resinus
P. schweinitzii
P. tomentosus var. *circinatus*
P. zonatus
Poria vaporaria
Pucciniastrum areolatum
P. sparsum
Pythium debaryanum
Rhizina undulata
Rhizosphaera kalkhoffii
Rosellinia aquila
Scleroderris abietina
Stereum sanguinolentum
Trametes heteromorpha
Trichoscyphella resinaria
Valsa kunzei

Picea engelmannii Parry

Engelmann spruce

*Herpotrichia nigra***Picea glauca (Moench) Voss**

white spruce

Armillaria mellea
Cenangium ferruginosum
Helicobasidium purpureum
Pestalotia hartigii

Picea glehnii (Fr. Schmidt) Mast.

Sakhalin spruce

Ceratocystis piceae
Fomes annosus
Pellicularia filamentosa
Polyporus balsameus
Poria subacida

Picea jezoensis (Sieb. & Zucc.) Carr.

Yeddo spruce

Ceratocystis piceae
Chrysomyxa expansa
C. ledi var. *rhododendri*
Fomes annosus
F. pini
F. pinicola
Fusarium oxysporum var. *aurantiacum*
Lentinus kaufmannii
Polyporus schweinitzii
P. sulphureus
P. tomentosus
Poria subacida
P. weirii

*Pucciniastrum areolatum***Picea jezoensis var. hondoensis (Mayr)**

Rehd. Hondo Yeddo spruce

Dasyscypha abieticola
Peridermium piceae-hondoensis
Phytophthora cactorum

Picea likiangensis (Franch.) Pritz.

Likiang spruce

Chrysomyxa ledi var. *ledi*
Fomes annosus
F. nigrolimitatus
F. pini
F. roseus

Picea mariana (Mill.) B. S. P.

black spruce

*Armillaria mellea***Picea obovata Ledeb.** Siberian spruce

Chrysomyxa woronini
Fomes pini
Polyporus borealis
Pucciniastrum areolatum

Picea omorika (Pancic) Purkyne

Serbian spruce

Armillaria mellea
Fomes pini
Fusarium oxysporum var. *aurantiacum*
Herpotrichia nigra
Lophodermium macrosporium

Picea orientalis (L.) Link

oriental spruce

Fusarium oxysporum var. *aurantiacum*
Rhizosphaera kalkhoffii

Picea schrenkiana Fisch. & Mey.

Schrenk spruce

Chrysomyxa deformans
Rhizosphaera kalkhoffii

Picea sitchensis (Bong.) Carr.

Sitka spruce

Ascochyta piniperda
Chrysomyxa ledi var. *rhododendri*
Pezicula livida
Sparassis ramosa

Picea smithiana (Wall.) Boiss

Himalayan spruce

Armillaria mellea
Chrysomyxa deformans
C. himalensis
C. piceae
Fomes annosus
F. pini
Lophodermium piceae
Peridermium thomsoni
Polyporus sulphureus

<i>P. tomentosus</i> var. <i>circinatus</i> <i>Pucciniastrum areolatum</i>	<i>Pinus canariensis</i> C. Smith Canary pine
<i>Picalima nitida</i> (Stapf) Th. & H. Dur.	<i>Diplodia pinea</i> <i>Pestalotia funerea</i> <i>Phacididopycnis pseudotsugae</i>
<i>Calonectria rigidiuscula</i> <i>Picrasma philippinensis</i> Elmer Philippine quassia-wood	<i>Pinus caribaea</i> Morelet Caribbean pine
<i>Asterina lobata</i> <i>Picrasma quassioides</i> (D. Don) Benn. India quassia-wood	<i>Armillaria mellea</i> <i>Physalospora abdita</i>
<i>Microsphaera alni</i> <i>Phyllactinia guttata</i> <i>Pimenta dioica</i> (L.) Merr. allspice <i>Ceratocystis fimbriata</i> <i>Puccinia psidii</i>	<i>Pinus cembra</i> L. Swiss stone pine <i>Armillaria mellea</i> <i>Cronartium ribicola</i> <i>Cucurbitaria pithyophila</i> <i>Fomes annosus</i> <i>F. officinalis</i> <i>Herpotrichia nigra</i> <i>Hypoderma desmazierii</i> <i>Lophodermium nitens</i> <i>L. pinastri</i> <i>Nectria cucurbitula</i> <i>Phacidium infestans</i> <i>Scleroderris abietina</i> <i>Stereum sanguinolentum</i>
<i>Pimenta racemosa</i> (Mill.) J. W. Moore bay-rum tree <i>Puccinia psidii</i>	<i>Pinus cembra</i> var. <i>sibirica</i> Loud. Siberian stone pine <i>Coleosporium pinicola</i> <i>C. saussureae</i> <i>Cronartium ribicola</i> <i>Crumenula sororia</i> <i>Fomes pini</i> <i>Lophodermium pinastri</i> <i>Phoma strobiligena</i>
<i>Pinanga insignis</i> Becc. <i>Phytophthora palmivora</i>	<i>Pinus contorta</i> Dougl. lodgepole pine <i>Excupulina pinea</i>
<i>Pinus</i> sp. pine <i>Ceratocystis coerulescens</i> <i>Cladosporium herbarum</i> <i>Coleosporium senecionis</i> <i>Corticium galactinum</i> <i>C. odoratum</i> <i>Cronartium coleosporioides</i> <i>Fomes fomentarius</i> <i>F. officinalis</i> <i>F. pini</i> <i>F. pinicola</i> <i>Fusarium avenaceum</i> <i>F. bulbigenum</i> var. <i>blasticola</i> <i>F. orthoceras</i> <i>F. solani</i> var. <i>martii</i> <i>F. vasinfectum</i> <i>Ganoderma applanatum</i> <i>G. resinaceum</i> <i>Hypodermella sulcigena</i> <i>Lophodermium pinastri</i> <i>Melampsora pinitorqua</i> <i>Pellicularia filamentosa</i> <i>Phytophthora cactorum</i> <i>Polyporus sulphureus</i> <i>P. tomentosus</i> var. <i>circinatus</i> <i>Pythium ultimum</i> <i>Stereum abietinum</i> <i>Thelephora terrestris</i>	<i>Pinus densiflora</i> Sieb. & Zucc. Japanese red pine <i>Aristadiplodia pini</i> <i>Armillaria mellea</i> <i>Botrytis cinerea</i> <i>Ceratocystis ips</i> <i>C. minor</i> <i>C. piceae</i> <i>Cercospora pini-densiflorae</i> <i>Coleosporium asterum</i> <i>C. campanulae</i> <i>Cronartium quercuum</i> <i>Dasyscypha subtilissima</i> <i>Fomes pinicola</i> <i>Fusarium oxysporum</i> var. <i>aurantiacum</i> <i>Helicobasidium mompa</i> <i>Lophodermium pinastri</i> <i>Pellicularia filamentosa</i>
<i>Pinus ayacahuite</i> Ehrenb. Mexican white pine <i>Cronartium ribicola</i>	
<i>Pinus banksiana</i> Lamb. jack pine <i>Dasyscypha calyciformis</i>	

Pinus densiflora Sieb. & Zucc.(Continued) **Japanese red pine***Polyporus orientalis**P. schweinitzii**Sclerotinia kitajimana***Pinus echinata** Mill. **shortleaf pine***Rhizoctonia lamellifera***Pinus gerardiana** Wall. **chilghoza pine***Fomes pini***Pinus griffithii** McClelland**Himalayan pine***Armillaria mellea**Coleosporium barclayense**C. campanulae**Cronartium flaccidum**O. ribicola**Fomes annosus**F. pini**Hypoderma dcsmazierii**Lophodermium pinastri**Melampsora oblonga**Phoma strobiligena**Polyporus tomentosus* var. *circinatus**Scleroderris abietina**Trichoscyphella resinaria***Pinus halepensis** Mill. **Aleppo pine***Bacillus vuilemini**Armillaria mellea**Brunchorstia pini**Coleosporium inulae**C. senecionis**Cronartium flaccidum**Diplodia pinea**Fomes pini**Fusarium oxysporum**Lophodermium nitens**L. pinastri**Naemacyclus niveus**Phytophthora citrophthora**P. parasitica***Pinus khasya** Royle **Khasia pine***Armillaria mellea**Cronartium quercuum**Diplodia pinea**Fomes pinicola**Pellicularia filamentosa**Polyporus sulphureus**Pythium debaryanum***Pinus koraiensis** Sieb. & Zucc.**Korean pine***Coleosporium eupatorii**Cronartium ribicola**Fomes pini**Lophodermium pinastri***Pinus leiophylla** Schiede & Deppe*Cronartium conigenum**Hypoderma mexicanum***Pinus leiophylla** var. **chihuahuana**(Engelm.) Shaw **Chihuahua pine***Cronartium conigenum***Pinus luchuensis** Mayr **Luchu pine***Cercospora pini-densiflorae**Cronartium quercuum***Pinus massoniana** Lamb. **Masson pine***Cercospora pini-densiflorae**Coleosporium asterum**Cronartium quercuum**Pestalotia funerea**Pythium debaryanum***Pinus montezumae** Lamb.**Montezuma pine***Cronartium conigenum**Diplodia pinea**Peridermium guatemalense**P. montezumae***Pinus monticola** Dougl. ex. Lamb.**western white pine***Dasyscypha calyciformis**Fomes pini***Pinus mugo** Turra**Swiss mountain pine***Armillaria mellea**Cenangium ferruginosum**Coleosporium cacaliae**C. melampyri**C. senecionis**Cronartium flaccidum**Crumenula pinicola**Dasyscypha subtilissima**Diplodia pinea**Excipulina pinea**Fomes annosus**Fusarium bulbigenum* var. *blasticola**Helicobasidium purpureum**Hendersonia montana**Herpotrichia nigra**Hypodermella sulcigena**Lophodermium nitens**L. pinastri**Melampsora pinitorqua**M. populnea**Naemacyclus niveus**Nectria cucurbitula**Pestalotia hartigii**Phacidiopycnis pseudotsugae**Phytophthora cactorum**Rhizospora kalkhoffi*

- Rosellinia aquila*
Sclerodermis abietina
Pinus mugo var. **mughus** (Scop.)
 Zenari
 mugo Swiss mountain pine
Diplodia pinea
Pinus mugo var. **pumilio** (Haenke)
 Zenari shrubby Swiss pine
 Virus, mosaic
Caliciopsis pinea
Dasyscypha calyciformis
Neopeckia coulteri
Pinus mugo var. **rostrata** (Ant.)
 Hoopes tree Swiss pine
Armillaria mellea
Cenangium ferruginosum
Cronartium flaccidum
Crumenula pinicola
Dasyscypha subtilissima
Fomes annosus
Fusarium bulbigenum var. *blasticola*
Hypodermella sulcigena
Lophodermium pinastri
Melampsora pinitorqua
Phacidium infestans
Pythium debaryanum
Sclerodermis abietina
Thelephora terrestris
Pinus mugo var. **rotundata** (Link)
 Hoopes Hoopes Swiss pine
Fomes annosus
Lophodermium pinastri
Pinus muricata D. Don bishop pine
Armillaria mellea
Phaciidiopycnis pseudotsugae
Rhizoctonia lamellifera
Pinus nigra Arnold Austrian pine
Armillaria mellea
Brunchorstia pini
Cenangium ferruginosum
Coleosporium campanulae
C. petasitis
C. senecionis
Cronartium flaccidum
Crumenula pinicola
C. sororia
Dasyscypha calyciformis
D. pini
D. subtilissima
Diplodia pinea
Escipulina pinea
Fomes annosus
Helicobasidium purpureum
Hypodermella sulcigena
Lophodermium pinastri
Naemacycylus niveus
Phacidium infestans
Pythium debaryanum
Rhizosphaera kalkhoffii
Scirrhia acicola
Sclerodermis abietina
Trichoscyphella resinaria
Pinus nigra var. **cebennensis** (Godr.)
 Rehd. Cevennes pine
Lophodermium pinastri
Pinus nigra var. **poiretiana** Schneid.
 Corsican pine
Armillaria mellea
Cenangium ferruginosum
Coleosporium senecionis
Crumenula pinicola
C. sororia
Dasyscypha calyciformis
Diplodia pinea
Fomes annosus
Lophodermium pinastri
Naemacycylus niveus
Pellicularia filamentosa
Rhizina undulata
Sclerodermis abietina
Pinus occidentalis Sw. Cuban pine
Fusarium lateritium
Lophodermium pinastri
Pinus oocarpa Schiede ———
Cronartium conigenum
Peridermium mexicanum
Pinus parviflora Sieb. & Zucc.
 Japanese white pine
Ceratocystis piceae
Cronartium ribicola
Helicobasidium mompa
Hypoderma desmazieri
Polyporus schweinitzii
Pinus patula Schlecht. & Cham.
 jelecote pine
Armillaria mellea
Diplodia pinea
Peridermium mexicanum
Pinus peuce Griseb. Balkan pine
Cronartium ribicola
Fomes pini
Hypoderma desmazieri

Pinus pinaster Ait.	cluster pine	Pinus rigida Mill.	pitch pine
<i>Armillaria mellea</i>		<i>Cladosporium herbarum</i>	
<i>Coleosporium senecionis</i>		Pinus roxburghii Sarg.	chir pine
<i>Cronartium flaccidum</i>		<i>Armillaria mellea</i>	
<i>Cytospora damnosa</i>		<i>Coleosporium campanulae</i>	
<i>Diplodia pinea</i>		<i>C. inulae</i>	
<i>Fomes annosus</i>		<i>Cronartium himalayense</i>	
<i>F. pini</i>		<i>Diplodia pinea</i>	
<i>Lophodermium pinastri</i>		<i>Fomes annosus</i>	
<i>Melampsora pinitorqua</i>		<i>F. pini</i>	
<i>Mycosphaerella pinifolia</i>		<i>Helicobasidium compactum</i>	
<i>Naemacyclus niveus</i>		<i>Lophodermium pinastri</i>	
<i>Pestalotia funerea</i>		<i>Pestalotia funerea</i>	
<i>Polyporus schweinitzii</i>		<i>Poria monticola</i>	
<i>Rhizina undulata</i>		Pinus strobus L.	eastern white pine
<i>Rhizoctonia lamellifera</i>		<i>Ceratocystis minor</i>	
<i>Scleroderma abietina</i>		<i>Cytospora cureyi</i>	
Pinus pinea L.	Italian stone pine	<i>Pythium debaryanum</i>	
<i>Alternaria tenuis</i>		<i>Sparassis ramosa</i>	
<i>Cladosporium laricis</i>		Pinus sylvestris L.	Scotch pine
<i>Diplodia pinea</i>		<i>Armillaria mellea</i>	
<i>Fomes pini</i>		<i>Botrytis cinerea</i>	
<i>Melampsora pinitorqua</i>		<i>Brunchorstia pini</i>	
<i>Naemacyclus niveus</i>		<i>Cenangium ferruginosum</i>	
<i>Phytophthora citrophthora</i>		<i>C. kazachstanicum</i>	
<i>Polyporus schweinitzii</i>		<i>Ceratocystis coerulescens</i>	
<i>Sphaeropsis necatrix</i>		<i>C. ips</i>	
Pinus ponderosa Laws.	ponderosa pine	<i>C. minor</i>	
<i>Dasyscypha calyciformis</i>		<i>C. piceae</i>	
<i>Fusarium oxysporum</i> var. <i>aurantiacum</i>		<i>C. pilifera</i>	
Pinus pseudostrobus Lindl.		<i>Coleosporium cacialiae</i>	
	Nicaragua pine	<i>C. campanulae</i>	
<i>Cronartium conigenum</i>		<i>C. euphrasiae</i>	
Pinus pumila Reg.		<i>C. inulae</i>	
	Japanese stone pine	<i>C. melampyri</i>	
<i>Coleosporium pinicola</i>		<i>C. petasitis</i>	
<i>C. saussureae</i>		<i>C. senecionis</i>	
<i>C. senecionis</i>		<i>C. sonchi</i>	
<i>Cronartium kamtschaticum</i>		<i>C. tussilaginis</i>	
<i>C. ribicola</i>		<i>Coniophora bourdotii</i>	
<i>Hypodermella hiratsukae</i>		<i>C. puteana</i>	
<i>Peridermium kurilense</i>		<i>Cronartium flaccidum</i>	
Pinus radiata D. Don		<i>C. quercuum</i>	
	Monterey pine	<i>Crumenula pinicola</i>	
<i>Armillaria mellea</i>		<i>C. sororia</i>	
<i>Dasyscypha calyciformis</i>		<i>Cucurbitaria pithyophila</i>	
<i>Fusarium oxysporum</i>		<i>Cytospora cureyi</i>	
<i>Phaciidiopycnis pseudotsugae</i>		<i>Dasyscypha calyciformis</i>	
<i>Poria ferruginosa</i>		<i>D. pini</i>	
<i>Rhizoctonia lamellifera</i>		<i>D. subtilissima</i>	
<i>Scirrhia acicola</i>		<i>Diplodia pinea</i>	
<i>Scleroderma abietina</i>		<i>Excipulina pinea</i>	

<i>Fomes annosus</i>		<i>Fusarium oxysporum</i> var. <i>aurantiacum</i>	
<i>F. pini</i>		<i>Lophodermium pinastri</i>	
<i>Fusarium bulbigenum</i> var. <i>blasticola</i>		<i>Pellicularia flamentosa</i>	
<i>F. oxysporum</i> var. <i>aurantiacum</i>		<i>Peridermium pini-thunbergii</i>	
<i>F. solani</i>		<i>P. praelongum</i>	
<i>Herpotrichia nigra</i>		<i>Polyporus schweinitzii</i>	
<i>Hypoderma desmazierii</i>		Piptadenia sp. piptadenia	
<i>Hypodermella conjuncta</i>		<i>Ravenelia henningsiana</i>	
<i>H. sulcigena</i>		Piptadenia africana Hook. f.	
<i>Lophodermium pinastri</i>		African piptadenia	
<i>Melampsora pinitorqua</i>		<i>Fomes lignosus</i>	
<i>M. populnea</i>		Piptadenia latifolia Benth. ———	
<i>Naemacyclus niveus</i>		<i>Diorchidium piptadeniae</i>	
<i>Nectria cucurbitula</i>		Piptadenia laxa Benth. ———	
<i>Pellicularia flamentosa</i>		<i>Diorchidium piptadeniae</i>	
<i>Pestalotia hartigii</i>		Piptadenia peregrina (L.) Benth. ———	
<i>Phacidium infestans</i>		<i>Ravenelia cebil</i>	
<i>Phoma strobiligena</i>		Pipturus albidus A. Gray ———	
<i>Polyporus giganteus</i>		<i>Botryosphaeria ribis</i> var. <i>chromogena</i>	
<i>P. mollis</i>		Piscidia piscipula (L.) Sarg.	
<i>P. schweinitzii</i>		Florida fishpoison-tree	
<i>P. sulphureus</i>		<i>Cercospora piscidiae</i>	
<i>P. tomentosus</i> var. <i>circinatus</i>		Pisonia aculeata L.	
<i>Poria vaporaria</i>		devil's-claw pisonia	
<i>Pythium debaryanum</i>		<i>Aecidium pisoniae</i>	
<i>P. torulosum</i>		Pistacia chinensis Bunge	
<i>Rhizina undulata</i>		Chinese pistache	
<i>Scleroderma abietina</i>		<i>Helicobasidium mompa</i>	
<i>Septoria acuum</i>		<i>Pileolaria terebinthi</i>	
<i>Sparassis ramosa</i>		Pistacia khinjuk Stocks	
<i>Stereum sanguinolentum</i>		Egyptian pistache	
<i>Trichoscyphella resinaria</i>		<i>Polyporus hispidus</i>	
Pinus tabulaeformis Carr.	Chinese pine	Pistacia lentiscus L. lentisk pistache	
<i>Armillaria mellea</i>		<i>Fomes robiniae</i>	
Pinus tabulaeformis var. <i>yunnanensis</i>	Yunnan pine	<i>F. robustus</i>	
(Franch.) Dallimore		<i>F. torulosus</i>	
<i>Cronartium flaccidum</i>		<i>Phyllosticta lentisci</i> var. <i>maculicola</i>	
<i>C. quercuum</i>		<i>Septoria pistacina</i>	
<i>Fomes officinalis</i>		Pistacia mexicana H. B. K.	
<i>F. pini</i>		Mexican pistache	
Pinus thunbergii Parl.	Japanese black pine	<i>Pileolaria standleyi</i>	
<i>Cenangium ferruginosum</i>		Pistacia mutica Fisch. & Mey.	
<i>Ceratocystis ips</i>		Turk terebinth pistache	
<i>C. minor</i>		<i>Fomes robiniae</i>	
<i>C. piceae</i>		Pistacia terebinthus L.	
<i>Coleosporium asterum</i>		terebinth pistache	
<i>C. campanulae</i>		<i>Pileolaria terebinthi</i>	
<i>Cronartium quercuum</i>		<i>Septoria pistacina</i>	
<i>Dasyscypha subtilissima</i>		<i>Uromyces terebinthi</i>	
<i>Diplodia pinea</i>			

Pistacia vera L. common pistache	Pittosporum sp. _____
Virus, rosette	<i>Armillaria mellea</i>
<i>Fomes robiniae</i>	Pittosporum clementis Merr. _____
<i>Rosellinia necatrix</i>	<i>Asterina escharoides</i>
<i>Septoria pistacina</i>	Pittosporum pentandrum Merr. _____
<i>Uromyces terebinthi</i>	
Pistacia weinmannifolia Poiss. Yunnan pistache	<i>Asterina densa</i>
<i>Pileolaria terebinthi</i>	Pittosporum ramiflorum Miq. _____
Pithecellobium sp. blackbead	<i>Asterina escharoides</i>
<i>Ravenelia minuta</i>	Pittosporum undulatum Vent. orangeberry pittosporum
Pithecellobium divaricatum Benth. _____	<i>Helicobasidium tanakae</i>
<i>Chaconia alutacea</i>	<i>Meliola amaniensis</i>
Pithecellobium dulce (Roxb.) Benth. guamachil	Plagianthus betulinus A. Cunn. ribbonwood twinebark
Virus, mosaic	<i>Myxosporium hoheriae</i>
<i>Clitocybe tabescens</i>	Planchonia spectabilis Merr. _____
<i>Corticium salmonicolor</i>	<i>Lophodermium aleuritidis</i>
<i>Microstroma pithecolobii</i>	Platanus sp. sycamore
<i>Ravenelia pithecolobii</i>	<i>Calonectria pyrochroa</i>
Pithecellobium glomeratum (DC.) Benth. _____	<i>Fistulina hepatica</i>
<i>Chaconia alutacea</i>	<i>Fomes connatus</i>
<i>Ravenelia amazonica</i>	<i>Nummularia regia</i>
Pithecellobium lanceolatum (Humb. & Bonpl.) Benth. _____	<i>Polyporus hispidus</i>
<i>Cercospora spiloticta</i>	<i>P. squamosus</i>
<i>Ravenelia pithecolobii</i>	Platanus ×acerifolia (Ait.) Willd. London planetree
Pithecellobium ligustrinum (Jacq.) Klotzsch _____	<i>Gnomonia veneta</i>
<i>Cercospora bauhiniae</i>	<i>Mycosphaerella platanifolia</i>
<i>C. spiloticta</i>	Platanus occidentalis L. American sycamore
<i>Phyllosticta pithecolobii</i>	<i>Calonectria pyrochroa</i>
Pithecellobium recordii (Britton & Rose) Standl. _____	<i>Gnomonia veneta</i>
<i>Chaconia alutacea</i>	<i>Microstroma platani</i>
Pithecellobium saman (Jacq.) Benth. rain tree	Platanus orientalis L. oriental planetree
<i>Cercospora samanae</i>	<i>Colletotrichum dematium</i>
<i>Fomes annularis</i>	<i>Fomes ulmarius</i>
<i>Microstroma pithecolobii</i>	<i>Gnomonia veneta</i>
Pithecellobium scutiferum (Blanco) Benth. _____	<i>Helicobasidium mompa</i>
<i>Colletotrichum gloeosporioides</i>	<i>Mycosphaerella platanifolia</i>
<i>Uredo raciborskii</i>	<i>Nectria ditissima</i>
Pithecellobium tortum Mart. _____	<i>Phytophthora cinnamomi</i>
<i>Ravenelia pithecolobii</i>	<i>Polyporus hispidus</i>
Pithecellobium unguis-cati (L.) Benth. catclaw blackbead	<i>P. sulphureus</i>
<i>Colletotrichum gloeosporioides</i>	Platanus orientalis var. <i>insularis</i> A. DC. island oriental planetree
<i>Pestalotia funerea</i>	<i>Gnomonia veneta</i>
<i>Phyllosticta pithecolobii</i>	Platycarya strobilacea Sieb. & Zucc. _____
<i>Ravenelia pithecolobii</i>	<i>Helicobasidium mompa</i>
	Platylobium formosum Sm. _____
	<i>Cronartium jacksoniae</i>

Podocarpus sp. ———	Pomaderris apetala Labill.
<i>Fomes ulmarius</i>	virescent anzacwood
<i>Ganoderma applanatum</i>	<i>Uredo spyridii</i>
Podocarpus andinus Poepp.	Pongamia pinnata (L.) Merr.
Andes podocarpus	poonga-oil
<i>Corynelia tropica</i>	<i>Ganoderma lucidum</i>
Podocarpus angustifolius Griseb. ———	Populus sp. poplar
<i>Corynelia oreophila</i>	<i>Agrobacterium tumefaciens</i>
Podocarpus coriaceus L. C. Rich. ———	<i>Pseudomonas rimaefaciens</i>
<i>Corynelia portoricensis</i>	<i>Armillaria mellea</i>
Podocarpus costalis C. Presl ———	<i>Botryodiplodia penzigii</i>
<i>Corynelia tropica</i>	<i>Collybia velutipes</i>
Podocarpus elongatus (Ait.) L'Her.	<i>Corticium salmonicolor</i>
fern podocarpus	<i>Cytidia salicina</i>
<i>Corynelia uberata</i>	<i>Daedalea unicolor</i>
<i>Tripospora tripos</i>	<i>Dothichiza populea</i>
Podocarpus falcatus R. Br.	<i>Fomes conchatus</i>
oteniqua yellowwood	<i>F. connatus</i>
<i>Pestalotia funerea</i>	<i>F. fomentarius</i>
Podocarpus gracilior Pilger	<i>F. fraxineus</i>
musengera podocarpus	<i>F. igniarius</i>
<i>Corynelia uberata</i>	<i>F. ulmarius</i>
Podocarpus lambertii Klotzsch ———	<i>Ganoderma applanatum</i>
<i>Corynelia brasiliensis</i>	<i>G. lucidum</i>
Podocarpus latifolius R. Br.	<i>Marssonina populi</i>
real yellowwood	<i>Melampsora allii-populina</i>
<i>Corynelia uberata</i>	<i>M. pinitorqua</i>
<i>Tripospora tripos</i>	<i>M. populnea</i>
Podocarpus macrophyllus (Thunb.) D.	<i>Nectria ditissima</i>
Don yew podocarpus	<i>Pholiota destruens</i>
<i>Corynelia nipponensis</i>	<i>Phyllosticta populina</i>
Podocarpus macrostachys Parl. ———	<i>Polyporus hispidus</i>
<i>Corynelia oreophila</i>	<i>P. litschaueri</i>
Podocarpus milanjanus Rendle ———	<i>P. sulphureus</i>
<i>Corynelia uberata</i>	<i>P. zonatus</i>
<i>Lagenulopsis bispora</i>	<i>Stereum purpureum</i>
Podocarpus nagi (Thunb.) Zoll. &	<i>Taphrina johansonii</i>
Mortiz Japanese podocarpus	<i>Trametes trogii</i>
<i>Corynelia uberata</i>	<i>Ustulina deusta</i>
Podocarpus purdieanus Hook. ———	<i>Valsa sordida</i>
<i>Corynelia jamaicensis</i>	Populus alba L. white poplar
Podocarpus salignus D. Don	<i>Agrobacterium tumefaciens</i>
willowleaf podocarpus	<i>Bacillus populi</i>
<i>Corynelia tropica</i>	<i>Micrococcus populi</i>
Podocarpus sellowii Kotsch ———	<i>Diplodia gongrogena</i>
<i>Corynelia oreophila</i>	<i>Dothichiza populea</i>
Podocarpus spinulosus R. Br.	<i>Fomes connatus</i>
spinyleaf podocarpus	<i>F. fomentarius</i>
<i>Corynelia uberata</i>	<i>F. igniarius</i>
	<i>Ganoderma applanatum</i>
	<i>Marssonina populi</i>
	<i>Melampsora larici-tremulae</i>
	<i>M. mercurialis-tremulae</i>

Populus alba L. white poplar

(Continued)

*M. pinitorqua**M. populnea**M. rostrupii**Mycosphaerella togashiana**Nectria ditissima**Olpidium brassicae**Polyporus sulphureus**P. zonatus**Pseudopeziza populi-albae**Stereum purpureum**Taphrina rhizophora**Trametes trogii**Valsa sordida**Venturia populina**V. tremulae***Populus alba f. nivea Schneid. ———***Melampsora pulcherrima***Populus alba f. pyramidalis Dipp. bolleana poplar***Venturia tremulae***Populus angulata Ait. angletwig poplar***Micrococcus populi**Dothichiza populea**Taphrina populina**Valsa nivea***Populus balsamifera L. balsam poplar***Micrococcus populi**Dothichiza populea**Fomes connatus**F. igniarius**Melampsora allii-populina**M. larici-populina**M. larici-tremulae**M. mercurialis-tremulae**M. pinitorqua**M. populnea**Nectria coccinea**N. ditissima**Phyllosticta prominens**Physalospora gregaria**Pseudopeziza populi-albae**Taphrina populina**Valsa nivea***Populus balsamifera var. subcordata Hylander ———***Melampsora larici-populina***Populus Xberolinensis Dipp. Berlin poplar***Micrococcus populi**Dothichiza populea**Nectria coccinea**Pseudopeziza populi-albae**Taphrina populina***Populus Xcanadensis Moench****Carolina poplar***Micrococcus populi**Pseudomonas rimaefaciens**Armillaria mellea**Ascochyta populorum**Dothichiza populea**Fomes connatus**F. igniarius**Fusarium javanicum**Marssonina castagnei**Melampsora albertensis**M. allii-populina**M. larici-populina**M. mercurialis-tremulae**Mycosphaerella populi**M. populicola**Nectria cinnabarina**N. ditissima**N. galligena**Phyllosticta populina**Physalospora populina**Polyporus squamosus**P. sulphureus**Septotinia populiperda**Uncinula adunca**U. salicis**Venturia populina**V. tremulae***Populus canadensis var. charkowiensis Schroed. ———***Dothichiza populea***Populus Xcanadensis f. erecta (Selys-Longch.) Rehd.****pyramidal Carolina poplar***Pseudomonas rimaefaciens**Dothichiza populea**Nectria coccinea***Populus Xcanadensis var. eugenei (Simon-Louis) Schelle ———***Micrococcus populi**Dothichiza populea**Melampsora larici-populina**Nectria coccinea***Populus Xcanadensis f. gelrica Houtz. ———***Micrococcus populi**Pseudomonas rimaefaciens**Armillaria mellea**Dothichiza populea**Melampsora larici-populina**Nectria coccinea*

Populus ×canadensis var. **lloydii** Henry

Dothichiza populea

Populus ×canadensis var. **marilandica** (Poir.) Rehd.

longtip Carolina poplar

Micrococcus populi

Pseudomonas rimaefaciens

Dothichiza populea

Melampsora larici-populina

Nectria coccinea

Septotinia populiperda

Populus ×canadensis var. **regenerata** (Henry) Rehd.

early Carolina poplar

Micrococcus populi

Dothichiza populea

Melampsora larici-populina

Nectria coccinea

Populus ×canadensis var. **serotina** (Hartig) Rehd.

late Carolina poplar

Micrococcus populi

Pseudomonas rimaefaciens

Armillaria mellea

Dothichiza populea

Marssonina castagnei

Melampsora larici-populina

M. populnea

Mycosphaerella populi

Nectria coccinea

Phyllosticta populina

Valsa nivea

V. sordida

Populus ×canescens (Ait.) Sm.

gray poplar

Micrococcus populi

Armillaria mellea

Dothichiza populea

Marssonina populi

Melampsora pinitorqua

M. populnea

Taphrina johansonii

Venturia tremulae

Populus ciliata Wall.

Melampsora ciliata

M. populnea

Taphrina populina

Uncinula salicis

Populus deltoides Bartr.

eastern cottonwood

Micrococcus populi

Armillaria mellea

Cercospora populicola

Fomes fomentarius

Marssonina castagnei

M. populi

Melampsora larici-populina

M. populnea

Nectria coccinea

Pholiota aegerita

Phyllosticta populina

Septotinia populiperda

Valsa sordida

Venturia populina

Populus fremontii S. Wats.

Fremont cottonwood

Nectria coccinea

Populus fremontii var. **wislizenii** S. Wats.

Rio Grande cottonwood

Nectria coccinea

Valsa sordida

Populus ×generosa Henry

Micrococcus populi

Melampsora larici-populina

Taphrina populina

Populus hickeliana Dode

Melampsora pulcherrima

Populus koreana Rehd. Korean poplar

Agrobacterium tumefaciens

Dothichiza populea

Populus lasiocarpa Oliver

Chinese poplar

Melampsora larici-populina

Populus laurifolia Ledeb.

laurel poplar

Dothichiza populea

Marssonina populi

Melampsora larici-populina

M. populnea

Mycosphaerella populorum

Nectria coccinea

Stereum purpureum

Taphrina populina

Populus maximowiczii Henry

Japanese poplar

Dothichiza populea

Helicobasidium mompa

Nectria coccinea

Pestalotia populi-nigrae

Populus nigra L.

black poplar

Bacillus populi

Micrococcus populi

Corticium salmonicolor

Diplodia gongrogena

Dothichiza populea

Fomes connatus

F. fomentarius

- Populus nigra L.** black poplar
(Continued)
F. igniarius
Helicobasidium mompa
Marssonina castagnei
M. populi
Melampsora allii-populina
M. larici-populina
M. magnusiana
M. mercurialis-tremulae
M. populnea
Mycosphaerella populi
Nectria coccinea
N. galligena
Pestalotia populi-nigrae
Phyllosticta populina
Polyporus squamosus
Pseudopeziza populi-albae
Taphrina populina
Uncinula adunca
U. salicis
Uredo tholopsora
Valsa nivea
V. sordida
Venturia tremulae
- Populus nigra var. betulifolia Torr.**
birchleaf black poplar
Nectria coccinea
- Populus nigra var. elegans Bailey**

Micrococcus populi
Dothichiza populea
Nectria coccinea
- Populus nigra var. italica Muenchh.**
Lombardy poplar
Micrococcus populi
Cercospora populina
Cytospora ambiens
Dothichiza populea
Marssonina castagnei
Melampsora larici-populina
M. populnea
Mycosphaerella populi
M. populorum
Nectria coccinea
Phyllosticta populina
Sphaceloma populi
Stereum purpureum
Taphrina populina
Uncinula adunca
U. salicis
Valsa sordida
Venturia populina
V. tremulae
- Populus ×petrowskyana (Schroed.)**
Schneid. Petrowsky poplar
Dothichiza populea
- Populus pruinosa Schrenk**
bloomy poplar
Melampsora pruinosa
- Populus ×rasumowskiana (Schroed.)**
Dippel Razoumofsky poplar
Dothichiza populea
Taphrina populina
- Populus ×robusta (Simon-Louis)**
Schneid. false Lombardy poplar
Micrococcus populi
Pseudomonas rimaefaciens
Dothichiza populea
Melampsora larici-populina
Nectria coccinea
Septotinia populiperda
Valsa sordida
Venturia populina
- Populus rotundifolia Griff.**
roundleaf poplar
Melampsora rostrupii
- Populus sieboldii Miq.** Siebold aspen
Melampsora magnusiana
Taphrina johansonii
Uncinula salicis
- Populus simonii Carr.** Simon poplar
Agrobacterium tumefaciens
Dothichiza populea
Melampsora larici-populina
Mycosphaerella populorum
M. togashiana
Pestalotia populi-nigrae
Uncinula salicis
- Populus simonii f. fastigiata Schneid.**
pyramidal Simon poplar
Dothichiza populea
- Populus suaveolens Fisch.**
Mongolian poplar
Cladosporium herbarum
Dothichiza populea
Melampsora populnea
Nectria coccinea
Uncinula salicis
- Populus szechuanica Schneid.**
Szechwan poplar
Agrobacterium tumefaciens
- Populus tomentosa Carr.**
Chinese white poplar
Phyllactinia guttata
Uredo tholopsora

Populus tremula L.	European aspen	Populus trichocarpa Torr. & Gray	black cottonwood
<i>Bacillus populi</i>		<i>Micrococcus populi</i>	
<i>Micrococcus populi</i>		<i>Dothichiza populea</i>	
<i>Armillaria mellea</i>		<i>Nectria coccinea</i>	
<i>Ascochyta tremulae</i>		Populus tristis Fisch.	browntwig poplar
<i>Daedalea unicolor</i>		<i>Dothichiza populea</i>	
<i>Diplodia gongrogena</i>		<i>Nectria coccinea</i>	
<i>Fomes annosus</i>		Populus yunnanensis Dode	_____
<i>F. connatus</i>		<i>Melampsora larici-populina</i>	
<i>F. fomentarius</i>		Pouteria caimito (Ruiz. & Pav.) Radlk.	abiu
<i>F. igniarius</i>		<i>Scopella lucumae</i>	
<i>F. pomaceus</i>		Pouteria campechiana (H. B. K.)	
<i>Hypoxylon mediterraneum</i>		<i>Baehni</i>	canistel
<i>Linospora populina</i>		<i>Achrotelium lucumae</i>	
<i>Marssonina castagnei</i>		Pouteria macrocarpa (Huber) Ducke	_____
<i>Melampsora larici-tremulae</i>		<i>Fomes lignosus</i>	
<i>M. magnusiana</i>		<i>Polyporus zonalis</i>	
<i>M. mercurialis-tremulae</i>		Pouteria multiflora (A. DC.) Eyma	_____
<i>M. pinitorqua</i>		<i>Pestalotia lucumae</i>	
<i>M. populnea</i>		Prosopis sp.	mesquite
<i>M. rostrupii</i>		<i>Ascochyta prosopidicola</i>	
<i>Mycosphaerella populi</i>		Prosopis campestris Griseb.	_____
<i>Nectria ditissima</i>		<i>Uncinula prosopidis</i>	
<i>Poylporus dryadeus</i>		<i>Uredo prosopidicola</i>	
<i>P. dryophilus</i>		Prosopis juliflora (Sw.) DC.	mesquite
<i>P. hispidus</i>		<i>Asterina prosopidis</i>	
<i>P. squamosus</i>		Prosopis ruscifolia Griseb.	_____
<i>P. sulphureus</i>		<i>Colletotrichum gloeosporioides</i>	
<i>P. zonatus</i>		Protium sp.	_____
<i>Septoria marmorata</i>		<i>Aecidium cerrense</i>	
<i>Taphrina johansonii</i>		Pseudolarix amabilis (Nels.) Rehd.	golden-larch
<i>T. rhizophora</i>		<i>Phacidiopycnis pseudotsugae</i>	
<i>Titaeosporina tremulae</i>		Pseudotsuga menziesii (Mirb.) Franco	Douglas-fir
<i>Trametes trogii</i>		<i>Ascochyta piniperda</i>	
<i>Uncinula adunca</i>		<i>Fomes officinalis</i>	
<i>U. salicis</i>		<i>F. pini</i>	
<i>Valsa nivea</i>		<i>Pellicularia filamentosa</i>	
<i>V. sordida</i>		<i>Pythium artotrogus</i>	
<i>Venturia populina</i>		<i>Sparassis ramosa</i>	
<i>V. tremulae</i>		Ptaeroxylon obliquum (Thunb.) Radlk.	_____
<i>Verticillium albo-atrum</i>		<i>Fomes robiniae</i>	
Populus tremula var. davidiana (Dode)	_____	<i>Ganoderma lucidum</i>	
<i>Schneid.</i>		Pterocarpus sp.	padauk
<i>Melampsora magnusiana</i>		<i>Ganoderma pseudoferreum</i>	
Populus tremula f. pendula Kirchner			
weeping European aspen			
<i>Taphrina johansonii</i>			
Populus tremuloides Michx.			
quaking aspen			
<i>Melampsora pinitorqua</i>			

Pterocarpus indicus Willd.

India padauk

Aldona stella-nigra
Fomes lamaoensis
Ganoderma lucidum
Pellicularia rolfsii
Schizophyllum commune

Pterocarpus marsupium Roxb.

vengai padauk

Ganoderma lucidum
Mainsia pterocarp
Maravalia pterocarp
Polyporus gilvus

Pterocarpus soyauxii Taub.

African padauk

*Fomes lignosus***Pterocarya** sp.

wingnut

*Gnomonia leptostyla***Pterocarya fraxinifolia** (Lam.) Spach

Caucasian wingnut

*Gnomonia leptostyla***Pterocarya stenoptera** C. DC.

Chinese wingnut

*Phyllactinia guttata***Pterospermum acerifolium** Willd.*Nectria haematococcus***Pycnanthus kombo** (Baill.) Warb.

akomo pycnanthus

*Asterina pycnanthi***Pyracantha** sp.

firethorn

*Phyllactinia guttata***Pyracantha coccinea** Roem.

scarlet firethorn

Fusicladium pirinum var. *pyracanthae***Quercus** sp.

oak

Armillaria mellea
Corticium comedens
Cronartium conigenum
C. quercuum
Cryptochaete rufa
Cystospora ambiens
Daedalea quercina
D. unicolor
Diaporthe taleola
Fistulina hepatica
Fomes conchatus
F. fomentarius
F. ignarius
F. pinicola
F. ribis
F. robiniae
F. robustus

*F. ulmarius**Ganoderma applanatum**G. lucidum**G. resinaceum**Hericium erinaceus**Hydnum cirrhatum**H. obrutans**Hymenochaete rubiginosa**Hysterographium fraxini**Irenina quercina**Irpea obliquus**Microsphaera alni**M. alni* var. *extensa**M. dentata**Mycosphaerella maculiformis**Nectria ditissima**Pellicularia filamentosa**Phytophthora cactorum**Pleurotus dryinus**Polyporus croceus**P. cuticularis**P. dryadeus**P. dryophilus**P. frondosus**P. giganteus**P. gilvus**P. hispidus**P. schweinitzii**P. squamosus**P. sulphureus**Rosellinia aquila**Septoria quercina**Stereum frustulatum**S. gausapatum**S. hirsutum**Trametes dickinsii**T. trogii**Uredo quercus**Ustulina deusta**Verticillium albo-atrum***Quercus acuta** Thunb.

Japanese evergreen oak

*Coccochora kusanoi**Coccochorella quercicola**Cronartium quercuum**Helicobasidium mompa***Quercus acutissima** Carruthers

sawtooth oak

*Cronartium quercuum**Helicobasidium mompa**Microsphaera alni**M. alni* var. *extensa**Taphrina caerulescens*

Quercus aliena Blume		Quercus glandulifera Blume	
	oriental white oak		glandbearing oak
<i>Erysiphe japonica</i>		<i>Cronartium quercuum</i>	
<i>Microsphaera alni</i>		<i>Dothiorella phomiformis</i>	
<i>Phyllactinia guttata</i>		<i>Helicobasidium mompae</i>	
Quercus baronii Skan	Baron oak	<i>H. tanakae</i>	
<i>Erysiphe japonica</i>		<i>Marssonina martini</i>	
Quercus brutia Tenore	_____	<i>Microsphaera alni</i>	
<i>Microsphaera alni</i> var. <i>extensa</i>		<i>M. alni</i> var. <i>extensa</i>	
Quercus canariensis Willd.		<i>Microstroma album</i> var. <i>japonicum</i>	
	Canary oak	<i>Nectria galligena</i>	
<i>Taphrina caerulescens</i>		<i>Sphaerotheca lanestris</i>	
Quercus cerris L.		<i>S. wrightii</i>	
	European turkey oak	<i>Uncinula septata</i>	
<i>Actinopelte dryina</i>		<i>Uredo castaneae</i>	
<i>Microsphaera alni</i> var. <i>extensa</i>		Quercus glauca Thunb.	
<i>Poria obliqua</i>			blue Japanese oak
<i>Rosellinia quercina</i>		<i>Cronartium quercuum</i>	
<i>Taphrina caerulescens</i>		<i>Erysiphe polygoni</i>	
Quercus coccifera L.	Kermes oak	<i>Hadronema orbiculare</i>	
<i>Microsphaera alni</i> var. <i>extensa</i>		<i>Microstroma album</i> var. <i>japonicum</i>	
<i>Taphrina caerulescens</i>		<i>Polyporus patouillardii</i>	
Quercus coccinea Muenchh.		<i>Sphaerotheca lanestris</i>	
	scarlet oak	<i>S. wrightii</i>	
<i>Cronartium quercuum</i>		Quercus griffithii Hook. f. & Thom.	_____
<i>Microsphaera alni</i> var. <i>extensa</i>		<i>Cornartium quercuum</i>	
Quercus delavayi Franch.	_____	Quercus ilex L.	holly oak
<i>Sphaerotheca lanestris</i>		<i>Ascochyta quercus</i>	
Quercus dentata Thunb.	daimyo oak	<i>Cronartium quercuum</i>	
<i>Cronartium quercuum</i>		<i>Endothia parasitica</i>	
<i>Endothia parasitica</i>		<i>Epidochium ilicinum</i>	
<i>Fusarium oxysporum</i> var. <i>aurantia-</i> <i>cum</i>		<i>Gnomonia quercus-ilicis</i>	
<i>Helicobasidium tanakae</i>		<i>Hypoxyton mediterraneum</i>	
<i>Microsphaera alni</i>		<i>Microsphaera alni</i> var. <i>extensa</i>	
<i>M. alni</i> var. <i>extensa</i>		<i>Polyporus cuticularis</i>	
<i>Sphaerotheca lanestris</i>		<i>Stereum gausapatum</i>	
<i>Taphrina caerulescens</i>		<i>Taphrina kruchii</i>	
Quercus dilatata Lindl.	_____	<i>Uredo quercus</i>	
<i>Polyporus obtusus</i>		Quercus leucotrichophora A. Camus	_____
Quercus fabri Hance	_____	<i>Fomes annosus</i>	
<i>Cronartium quercuum</i>		<i>Pestalotia clavispora</i>	
<i>Uncinula septata</i>		<i>Sphaerotheca lanestris</i>	
Quercus faginea Lam.	_____	Quercus lusitanica Lam.	
<i>Hypoxyton mediterraneum</i>			Portuguese oak
Quercus frainetto Tenore	Italian oak	<i>Endothia gyrosa</i>	
<i>Microsphaera alni</i> var. <i>extensa</i>		<i>Microsphaera alni</i> var. <i>extensa</i>	
Quercus fruticosa Brotero	_____	Quercus mongolica Fisch.	
<i>Endothia gyrosa</i>			Mongolian oak
<i>Taphrina caerulescens</i>		<i>Armillaria mellea</i>	
Quercus gilva Blume	_____	<i>Cronartium quercuum</i>	
<i>Helicobasidium mompae</i>		<i>Daedalea quercina</i>	
<i>Polyporus patouillardii</i>			

Quercus mongolica Fisch.

(Continued) Mongolian oak

*D. unicolor**Fomes fomentarius**F. igniarius**F. pomaceus**Ganoderma applanatum**Hericium erinaceus**Lophodermium punctiforme**Microsphaera alni* var. *extensa**Polyporus hispidus**P. litschaueri**Poria obliqua**Taphrina caerulescens***Quercus mongolica** var. *grosseserrata*

(Blume) Rehd. & Wils.

shallowcup Mongolian oak

*Cronartium quercuum**Erysiphe japonica**Fomes annosus**Ganoderma applanatum**Microsphaera alni**M. alni* var. *extensa**Microstroma album* var. *japonicum**Sphaerotheca lanestris**S. wrightii**Taphrina caerulescens***Quercus myrsinaefolia** Blume*Cronartium quercuum**Ganoderma applanatum**Helicobasidium mompa**Oidium japonicum**Sphaerotheca wrightii***Quercus neostuxbergii** Koidz.*Cronartium quercuum***Quercus nigra** L.

water oak

*Cronartium quercuum***Quercus oocarpa** Liebm.*Cronartium conigenum***Quercus palustris** Meunchh.

pin oak

*Cronartium quercuum***Quercus peduncularis** Née*Cronartium conigenum***Quercus petraea** L.

durmast oak

*Actinopelte dryina**Armillaria mellea**Ciborinia candolleana**Cronartium quercuum**Diaporthe taleola**Discula quercina**Endothia parasitica**Fistulina hepatica**Fomes connatus**F. igniarius**Lophodermium punctiforme**Microsphaera alni* var. *extensa**Poria obliqua**Rosellinia quercina**Taphrina caerulescens***Quercus pubescens** Willd.

pubescent oak

*Diaporthe taleola**Endothia parasitica**Lophodermium punctiforme**Microsphaera alni**M. alni* var. *extensa**Phyllosticta bresadoleana**Taphrina caerulescens***Quercus pyrenaica** Willd.

Pyrenees oak

*Endothia gyrosa**Microsphaera alni* var. *extensa**Phytophthora cinnamomi***Quercus repanda** Humb. & Bonpl.*Microsphaera alni* var. *extensa***Quercus robur** L.

English oak

*Actinopelte dryina**Armillaria mellea**Ciborinia candolleana**Corticium odoratum**Cylindrosporium kelloggii**Diaporthe taleola**Discula quercina**Endothia parasitica**Fistulina hepatica**Fomes connatus**F. igniarius**Lophodermium punctiforme**Microsphaera alni* var. *extensa**Nectria cinnabarina**N. ditissima**Phyllosticta associata**Phytophthora cambivora**P. cinnamomi**Polyporus dryadeus**P. hispidus**P. sulphureus**P. zonatus**Rosellinia quercina**Septoria quercina**Taphrina caerulescens**Uredo quercus*

Quercus rubra L.	northern red oak	Randia aculeata L.	box-briar
<i>Ciborinia candolleana</i>		<i>Aecidium abscedens</i>	
<i>Lophodermium punctiforme</i>		<i>Elsinoë puertoricensis</i>	
<i>Nectria galligena</i>		Randia armata (Sw.) DC.	—
Quercus schottkyana Rehd. & Wils.	—	<i>Angiopsora melaena</i>	
<i>Erysiphe polygoni</i>		Randia brandisii Gamble	—
Quercus semicarpifolia Sm.	—	<i>Dasturella divina</i>	
<i>Ganoderma lucidum</i>		Randia candolleana Wight & Arn.	—
<i>Polyporus obtusus</i>		<i>Dasturella divina</i>	
<i>Trametes mollis</i>		Randia dumetorum Lam.	
Quercus spicata Sm.	—		malabar randia
<i>Ceratocystis piceae</i>		<i>Dasturella divina</i>	
Quercus stenophylla Makino	—	Randia longiflora Lam.	—
<i>Ganoderma applanatum</i>		<i>Endophyllum griffithiae</i>	
Quercus suber L.	cork oak	Randia uliginosa Poir.	—
<i>Armillaria mellea</i>		<i>Hemileia thomasi</i>	
<i>Auricularia mesenterica</i>		Rapanea sp.	rapanea
<i>Daedalea quercina</i>		<i>Echidnodella cedralensis</i>	
<i>Endothia gyrosa</i>		<i>Schiffnerula robusta</i>	
<i>Æ. parasitica</i>		Rapanea ferruginea (Ruiz & Pav.) Mez	—
<i>Fomes fomentarius</i>		<i>Schiffnerula monotheca</i>	
<i>F. ignarius</i>		Rapanea melanophloeos (R. Br.) Mez	—
<i>Hypoxyton mediterraneum</i>		<i>Corynelia fruticicola</i>	
<i>H. sertatum</i>		<i>Coryneliospora fruticicola</i>	
<i>Microsphaera alni</i> var. <i>extensa</i>		Rhaphiolepis umbellata (Thunb.) Ma-	
<i>Nummularia regia</i>		kino	Yeddo rhaphiolepis
<i>Phytophthora cinnamomi</i>		<i>Helicobasidium mompa</i>	
<i>Polyporus cuticularis</i>		Rhopalostylis baueri (Hook.) H. Wendl.	
<i>P. giganteus</i>		& Drude	Bauer rhopalostylis
<i>Stereum hirsutum</i>		<i>Phytophthora palmivora</i>	
<i>Uredo quercus</i>		Rhytidophyllum auriculatum Hook.	—
Quercus suber var. occidentalis (Gay)		<i>Asterina dilabens</i>	
Arcang.	biennial cork oak	Robinia sp.	locust
<i>Daedalea quercina</i>		<i>Daedalea unicolor</i>	
<i>Endothia parasitica</i>		<i>Fomes connatus</i>	
<i>Fomes fomentarius</i>		<i>F. robiniae</i>	
<i>Polyporus cuticularis</i>		<i>Gibberella lateritia</i>	
<i>P. giganteus</i>		Robinia pseudoacacia L.	black locust
<i>Stereum hirsutum</i>		<i>Armillaria mellea</i>	
Quercus thalassica Hance	—	<i>Erysiphe polygoni</i>	
<i>Uleomyces decipiens</i>		<i>Ganoderma lucidum</i>	
Quercus variabilis Blume		<i>Pellicularia flamentosa</i>	
	Oriental oak	<i>Phomopsis oncostoma</i>	
<i>Cronartium quercuum</i>		<i>Phyllosticta robiniae</i>	
<i>Taphrina caerulescens</i>		<i>Phytophthora cactorum</i>	
Quercus velutina Lam.	black oak	Rondeletia cordata Benth.	
<i>Cronartium quercuum</i>			heartleaf rondeletia
Quercus virginiana Mill.	live oak	<i>Uredo rondeletiae</i>	
<i>Cronartium strobilinum</i>			
Randia sp.	randia		
<i>Aecidium randiae</i>			
<i>Irenina glabra</i>			

Rondeletia odorata Jacq. ———	Salix acutifolia Willd.
<i>Phyllosticta rondeletiae</i>	sharp-leaf willow
Roupala montana Aubl.	
Trinidad roupala	
<i>Catacauma rhopalinum</i>	
Rourea glabra H. B. K. ———	Salix alba L. white willow
<i>Phyllachora panamensis</i>	<i>Erwinia salicis</i>
Roystonea regia (H. B. K.) O. F. Cook	<i>Pseudomonas saliciperda</i>
Cuban royalpalm	<i>Armillaria mellea</i>
<i>Xanthomonas vasculorum</i>	<i>Cryptomyces maximus</i>
<i>Ceratocystis paradoxa</i>	<i>Cytospora salicis</i>
<i>Phyllachora roystoneae</i>	<i>Fomes conchatus</i>
Sabal causiarum (O. F. Cook) Beccari	<i>F. connatus</i>
Puerto Rico palmetto	<i>F. igniarius</i>
<i>Graphiola phoenicis</i>	<i>Ganoderma applanatum</i>
<i>Phytophthora palmivora</i>	<i>Melampsora epitea</i>
Sageretia pycnophylla Schneid.	<i>M. salicis-albae</i>
woollytwig sageretia	<i>Monostichella salicis</i>
<i>Accidium sageretiae</i>	<i>Myxofusicoccum salicis</i>
Salix sp. willow	<i>Nectria ditissima</i>
<i>Armillaria mellea</i>	<i>N. galligena</i>
<i>Collybia velutipes</i>	<i>Phomopsis salicina</i>
<i>Corticium bombycinum</i>	<i>Physalospora miyabeana</i>
<i>Cytidia salicina</i>	<i>Polyporus sulphureus</i>
<i>Cytospora ambiens</i>	<i>Scleroderris fuliginosa</i>
<i>Daedalea unicolor</i>	<i>Trametes suaveolens</i>
<i>Fistulina hepatica</i>	<i>Uncinula adunca</i>
<i>Fomes conchatus</i>	<i>Venturia chlorospora</i>
<i>F. fomentarius</i>	Salix alba var. calva G. F. Mey.
<i>F. igniarius</i>	cricket bat willow
<i>Fusamen amentorum</i>	<i>Erwinia salicis</i>
<i>Ganoderma lucidum</i>	<i>Armillaria mellea</i>
<i>Helicobasidium tanakae</i>	<i>Cryptomyces maximus</i>
<i>Lentinus tigrinus</i>	<i>Marssonina salicicola</i>
<i>Leptosphaeria coniothyrium</i>	<i>Valsa sordida</i>
<i>Melampsora salicis-albae</i>	Salix alba var. vitellina (L.) Stokes
<i>Nectria galligena</i>	
<i>Pholiota destruens</i>	<i>Aposphaeria pulviscula</i>
<i>Phyllosticta salicicola</i>	<i>Discella carbonacea</i>
<i>Physalospora salicis</i>	<i>Melampsora salicis-albae</i>
<i>Pleurotus dryinus</i>	<i>M. vitellinae</i>
<i>P. salignus</i>	<i>Nectria ditissima</i>
<i>Polyporus squamosus</i>	<i>Physalospora miyabeana</i>
<i>P. sulphureus</i>	<i>P. salicis</i>
<i>Rhytisma salicinum</i>	<i>Venturia chlorospora</i>
<i>Septoria salicicola</i>	Salix × ambigua Ehrh. puzzle willow
<i>Stereum purpureum</i>	<i>Melampsora repentina</i>
<i>Valsa sordida</i>	Salix amygdalina L.
<i>Venturia chlorospora</i>	almond-leaf willow
Salix acmophylla Boiss. ———	<i>Pseudomonas saliciperda</i>
<i>Uredo salicis-acmophyllae</i>	<i>Coniophora puteana</i>
	<i>Melampsora amygdalinae</i>
	<i>M. epitea</i>
	<i>M. vitellinae</i>

<i>Nectria galligena</i>		<i>Salix caprea</i> L.	goat willow
<i>Phyllosticta salicicola</i>		<i>Armillaria mellea</i>	
<i>Physalospora gregaria</i>		<i>Ascochyta translucens</i>	
<i>P. mtyabeana</i>		<i>Botryosphaeria ribis</i>	
<i>Scleroderris fuliginosa</i>		<i>Cytidia salicina</i>	
<i>Septoria salicicola</i>		<i>Daedalea unicolor</i>	
<i>Uncinula adunca</i>		<i>Fomes conchatus</i>	
<i>Venturia chlorospora</i>		<i>F. igniarius</i>	
<i>Salix amygdalina</i> var. <i>glaucophylla</i>		<i>F. igniarius</i> var. <i>laevigatus</i>	
(Ser.) Seemen	—	<i>Fusamen deformans</i>	
<i>Melampsora chelidonii-pierotii</i>		<i>Melampsora abieti-capraearum</i>	
<i>M. microsora</i>		<i>M. capraearum</i>	
<i>Salix arctica</i> Pall.	Arctic willow	<i>M. epitea</i>	
<i>Melampsora arctica</i>		<i>M. evonymi-capraearum</i>	
<i>M. epitea</i>		<i>M. larici-capraearum</i>	
<i>Salix atrocinerea</i> Brot.	—	<i>M. larici-epitea</i>	
<i>Melampsora epitea</i>		<i>M. salicina</i>	
<i>M. evonymi-capraearum</i>		<i>Monostichella salicis</i>	
<i>M. larici-capraearum</i>		<i>Phomopsis salicina</i>	
<i>Salix aurita</i> L.	round-ear willow	<i>Rhytisma salicinum</i>	
<i>Cytidia salicina</i>		<i>Scleroderris fuliginosa</i>	
<i>Fusamen amentorum</i>		<i>Septogloeum salicinum</i>	
<i>Melampsora capraearum</i>		<i>Trametes suaveolens</i>	
<i>M. epitea</i>		<i>Uncinula adunca</i>	
<i>M. larici-capraearum</i>		<i>U. salicis</i>	
<i>M. larici-epitea</i>		<i>Venturia chlorospora</i>	
<i>Rhytisma salicinum</i>		<i>Salix cinerea</i> L.	gray willow
<i>Venturia chlorospora</i>		<i>Fomes connatus</i>	
<i>Salix babylonica</i> L.	weeping willow	<i>Fusamen amentorum</i>	
<i>Armillaria mellea</i>		<i>Marssonina kriegieriana</i>	
<i>Cercospora salicina</i>		<i>Melampsora abieti-capraearum</i>	
<i>Cytospora salicis</i>		<i>M. capraearum</i>	
<i>Marssonina salicicola</i>		<i>M. evonymi-capraearum</i>	
<i>Melampsora coleosporioides</i>		<i>M. larici-capraearum</i>	
<i>M. epitea</i>		<i>M. larici-epitea</i>	
<i>Pleurotus ostreatus</i>		<i>M. salicina</i>	
<i>Sphaceloma murrayae</i>		<i>Phyllosticta salicicola</i>	
<i>Uncinula salicis</i>		<i>Rhytisma salicinum</i>	
<i>Venturia chlorospora</i>		<i>Trametes suaveolens</i>	
<i>Salix bakko</i> Kimura	—	<i>Venturia chlorospora</i>	
<i>Helicobasidium mompa</i>		<i>Salix cinerea</i> var. <i>latifolia</i> A. & E. G.	
<i>Melampsora larici-capraearum</i>		Camus	—
<i>Rhytisma salicinum</i>		<i>Uncinula salicis</i>	
<i>Uncinula salicis</i>		<i>Salix cuneata</i> Turcz.	—
<i>Salix × blanda</i> Anderss.		<i>Melampsora epitea</i>	
Wisconsin weeping willow		<i>Salix daphnoides</i> Vill.	daphne willow
<i>Venturia chlorospora</i>		<i>Cryptomyces maximus</i>	
<i>Salix bonplandiana</i> H. B. K.		<i>Melampsora epitea</i>	
Bonpland willow		<i>M. larici-capraearum</i>	
<i>Melampsora paradoxa</i>		<i>M. larici-epitea</i>	
<i>M. ribesii-purpureae</i>		<i>M. salicina</i>	
<i>Salix candida</i> Fluegge	sage willow	<i>Scleroderris fuliginosa</i>	
<i>Cryptomyces maximus</i>		<i>Uncinula salicis</i>	

Salix daphnoides var. pomeranica (Willd.) Koch	<i>M. larici-epitea</i>
Pomeranian daphne willow	<i>M. salicina</i>
<i>Melampsora salicina</i>	<i>Ramulaspera salicina</i>
Salix dasyclados Wimm.	<i>Rhytisma salicinum</i>
woollytwig willow	Salix herbacea L. pygmy willow
<i>Fusamen amentorum</i>	<i>Lophodermium versicolor</i>
Salix delavayana Hand.-Mazz. ———	<i>Melampsora arctica</i>
<i>Melampsora larici-epitea</i>	<i>M. epitea</i>
Salix elaeagnos Scop.	<i>Rhytisma salicinum</i>
elaegnus willow	Salix × heteromera Hand.-Mazz. ———
<i>Melampsora epitea</i>	<i>Melampsora coleosporioides</i>
<i>M. evonymi-incanae</i>	Salix hultenii Flod. ———
Salix formosa Willd. ———	<i>Melampsora epitea</i>
<i>Lophodermium versicolor</i>	Salix humboldtiana Willd.
<i>Melampsora epitea</i>	Humboldt willow
<i>Rhytisma salicinum</i>	<i>Cercospora salicina</i>
Salix fragilis L. crack willow	<i>Melampsora abieti-capraearum</i>
<i>Asteroma salicis</i>	<i>Ramularia rosea</i>
<i>Cryptomyces maximus</i>	Salix humboldtiana var. stipulacea
<i>Cytospora salicis</i>	(Mart. & Gal.) Schneid. ———
<i>Fomes connatus</i>	<i>Melampsora paradoxa</i>
<i>F. igniarius</i>	Salix integra Thunb. ———
<i>Macrophoma salicis</i>	<i>Melampsora humilis</i>
<i>Marssonina salicicola</i>	<i>Rhytisma salicinum</i>
<i>Melampsora allii-fragilis</i>	<i>Uncinula salicis</i>
<i>M. vitellinae</i>	Salix japonica Thunb. ———
<i>Monostichella salicis</i>	<i>Venturia chlorospora</i>
<i>Scleroderris fuliginosa</i>	Salix lanata L. woolly willow
<i>Sphaceloma murrayae</i>	<i>Melampsora epitea</i>
<i>Venturia chlorospora</i>	<i>Ramulaspera salicina</i>
Salix fragilis var. decipiens (Hoffm.) Koch ———	Salix lanata × hastata L. ———
<i>Venturia chlorospora</i>	<i>Septoria salicicola</i>
Salix fuscescens Ands. × sachalinensis	Salix lapponum L. Lapland willow
F. Schmidt ———	<i>Melampsora epitea</i>
<i>Melampsora epitea</i>	<i>M. lapponum</i>
Salix gilgiana Seem. Gilg willow	Salix lapponum × herbacea L. ———
<i>Rhytisma salicinum</i>	<i>Ramulaspera salicina</i>
Salix glauca L. grayleaf willow	Salix latifolia Forb. broadleaf willow
<i>Lophodermium versicolor</i>	<i>Melampsora larici-epitea</i>
<i>Melampsora epitea</i>	<i>M. ribesii-purpureae</i>
<i>Ramulaspera salicina</i>	Salix longiflora Anderss. ———
<i>Rhytisma salicinum</i>	<i>Melampsora larici-epitea</i>
Salix glauca × myrsinites L. ———	<i>M. yezoensis</i>
<i>Melampsora epitea</i>	Salix macrolepis Turcz. ———
Salix gracilistyla Miq.	<i>Melampsora epitea</i>
big-catkin willow	Salix matsudana Koidz.
<i>Uncinula salicis</i>	Hankow willow
Salix grandifolia Ser. bigleaf willow	<i>Cercospora salicina</i>
<i>Fomes connatus</i>	<i>Melampsora coleosporioides</i>
Salix hastata L. halberd willow	Salix mesneyi Hance ———
<i>Lophodermium versicolor</i>	<i>Melampsora coleosporioides</i>
<i>Melampsora epitea</i>	Salix meyeriana Rostk. Meyer willow
	<i>Venturia chlorospora</i>

Salix miyabeana Seem. Miyabe willow	Salix polaris Wahlenb. poplar willow
<i>Melampsora larici-epitea</i>	<i>Melampsora arctica</i>
Salix × mollissima Ehrh. soft willow	<i>M. epitea</i>
<i>Melampsora epitea</i>	<i>Rhytisma salicinum</i>
<i>M. larici-epitea</i>	Salix pseudopolaris Flod. ———
<i>M. salicina</i>	<i>Melampsora epitea</i>
<i>Venturia chlorospora</i>	Salix psilostigma Anderss. ———
Salix × multinervis Doell	<i>Melampsora larici-epitea</i>
Japanese pussy willow	Salix purpurea L. purple-osier willow
<i>Melampsora vitellinae</i>	<i>Bacillus harai</i>
<i>Uncinula salicis</i>	<i>Pseudomonas saliciperda</i>
Salix myrsinifolia Salisb. ———	<i>Cryptomyces maximus</i>
<i>Fomes igniarius</i>	<i>Cytospora salicis</i>
<i>Melampsora epitea</i>	<i>Marssonina salicicola</i>
<i>M. larici-epitea</i>	<i>Melampsora abietis-capraearum</i>
<i>Ocellaria ocellata</i>	<i>M. epitea</i>
<i>Rhytisma salicinum</i>	<i>M. humilis</i>
<i>Venturia chlorospora</i>	<i>M. larici-epitea</i>
Salix myrsinites L. myrtle willow	<i>M. ribesii-purpureae</i>
<i>Melampsora epitea</i>	<i>M. salicina</i>
<i>Rhytisma salicinum</i>	<i>Nectria galligena</i>
Salix myrtilloides L.	<i>Physalospora miyabeana</i>
whortleberry willow	<i>Rhytisma salicinum</i>
<i>Melampsora epitea</i>	<i>Uncinula salicis</i>
Salix oxycarpa Anderss. ———	<i>Venturia chlorospora</i>
<i>Melampsora larici-epitea</i>	Salix purpurea f. gracilis (Gren. & Godr.) Schneid.
Salix parallelinervis Flod. ———	slender purple-osier willow
<i>Melampsora epitea</i>	<i>Rhytisma salicinum</i>
Salix parallelinervis Flod. × sachalinensis F. Schmidt ———	Salix purpurea f. pendula Dipp. ———
<i>Melampsora epitea</i>	<i>Helicobasidium purpureum</i>
Salix pentandra L. laurel willow	Salix pyrolaeifolia Ledeb.
<i>Cytospora salicis</i>	shinleaf willow
<i>Fomes igniarius</i>	<i>Rhytisma salicinum</i>
<i>Melampsora allii-fragilis</i>	<i>Uncinula adunca</i>
<i>M. larici-pentandrae</i>	Salix reinii Franch. & Sav. ———
<i>M. salicina</i>	<i>Melampsora arctica</i>
<i>Trametes suaveolens</i>	<i>Rhytisma salicinum</i>
<i>Venturia chlorospora</i>	Salix repens L. creeping willow
Salix pentandra var. pseudopentandra (L.) Flod. ———	<i>Cryptomyces maximus</i>
<i>Melampsora larici-pentandrae</i>	<i>Fusamen amentorum</i>
Salix phanera Schneid. ———	<i>Melampsora capraearum</i>
<i>Uncinula salicis</i>	<i>M. epitea</i>
Salix phlomoides Bieb. ———	<i>M. repentis</i>
<i>Melampsora capraearum</i>	<i>Rhytisma salicinum</i>
<i>Rhytisma salicinum</i>	<i>Uncinula adunca</i>
Salix phylicifolia L. tealeaf willow	Salix repens var. rosmarinifolia (L.) Wimm. & Grab.
<i>Cryptomyces maximus</i>	rosemary creeping willow
<i>Melampsora epitea</i>	<i>Melampsora capraearum</i>
<i>Rhytisma salicinum</i>	<i>M. repentis</i>
Salix pierotii Miq. Pierrot willow	
<i>Melampsora chelidonii-pierotii</i>	

Salix reptans Rupr. ———	Salix taxifolia var. microphylla (Schlecht. & Cham.) Schneid. ———
<i>Melampsora arctica</i>	<i>Melampsora arctica</i> ———
Salix reticulata L. netleaf willow	Salix tetrasperma Roxb. ———
<i>Melampsora arctica</i>	<i>Marssonina kriegieriana</i>
<i>M. capraearum</i>	<i>Melampsora larici-capraearum</i>
<i>M. epitea</i>	<i>Rhytisma salicinum</i>
<i>Rhytisma salicinum</i>	Salix undulata Ehrh. wavyleaf willow
Salix reticulata var. subrotunda A. & E. G. Camus round netleaf willow	<i>Melampsora salicina</i>
<i>Melampsora epitea</i>	<i>Scleroderris fuliginosa</i>
Salix retusa L. notchleaf willow	Salix urbaniana Seemen ———
<i>Lophodermium versicolor</i>	<i>Ganoderma applanatum</i>
<i>Melampsora arctica</i>	<i>Uncinula salicis</i>
Salix rotundifolia Trautv. least willow	Salix viminalis L. basket willow
<i>Melampsora arctica</i>	<i>Pseudomonas saliciperda</i>
Salix rubens Schrank whitecrack willow	<i>Cytospora salicis</i>
<i>Erwinia salicis</i>	<i>Discella carbonacea</i>
<i>Melampsora salicis-albae</i>	<i>Fomes ignarius</i>
<i>Monostichella salicis</i>	<i>Fusamen amentorum</i>
<i>Polyporus sulphureus</i>	<i>Melampsora abieti-capraearum</i>
<i>Scleroderris fuliginosa</i>	<i>M. epitea</i>
<i>Uncinula adunca</i>	<i>M. larici-epitea</i>
Salix rubens var. viridis (Fries) Rehd. ———	<i>M. ribesii-viminalis</i>
<i>Polyporus squamosus</i>	<i>Phomopsis salicina</i>
Salix ×rubra Huds. red willow	<i>Physalospora gregaria</i>
<i>Marssonina kriegieriana</i>	<i>P. miyabeana</i>
<i>Melampsora epitea</i>	<i>P. salicis</i>
<i>Physalospora salicis</i>	<i>Septogloeum salicinum</i>
Salix sachalinensis F. Schmidt Sakhalin willow	<i>Sphaceloma murrayae</i>
<i>Melampsora epitea</i>	<i>Uncinula salicis</i>
<i>M. larici-epitea</i>	<i>Venturia chlorospora</i>
Salix shikokiana Makino ———	Salix vulpina Anderss. ———
<i>Melampsora epiphylla</i>	<i>Helicobasidium mompa</i>
Salix ×smithiana Willd. Smith willow	<i>Rhytisma salicinum</i>
<i>Cryptomyces maximus</i>	<i>Uncinula salicis</i>
<i>Fusamen amentorum</i>	Salix wallichiana Anderss. Wallich willow
<i>Melampsora epitea</i>	<i>Uncinula salicis</i> ———
<i>M. larici-capraearum</i>	Salix wilsonii Seemen ———
<i>Rhytisma salicinum</i>	<i>Melampsora capraearum</i>
<i>Scleroderris fuliginosa</i>	<i>M. ribesii-purpureae</i> ———
<i>Uncinula salicis</i>	Salix xerophila Flod. ———
Salix stipularis Sm. stipule willow	<i>Melampsora epitea</i>
<i>Uncinula salicis</i>	Santalum album L. white sandalwood
Salix taxifolia H. B. K. yewleaf willow	Virus, leaf-curl mosaic
<i>Melampsora abieti-capraearum</i>	Virus, Sandal spike
	<i>Asterina congesta</i>
	<i>Phytophthora palmivora</i>
	<i>Sphaceloma santali</i>
	Sapindus bifoliatus Hiern. ———
	<i>Skierka patchii</i>

Sapindus mukorossii Gaertn. Chinese soapberry <i>Cercospora sapindicola</i> <i>Helicobasidium mompa</i>	Securinega suffruticosa (Pall.) Rehd. <i>Cercospora securinegae</i> <i>Nothoravenelia japonica</i>
Sapindus saponaria L. wingleaf soapberry <i>Cercospora sapindi</i>	Semiarundinaria fastuosa (Mittf.) Makino <i>Puccinia kusanoi</i>
Sapindus trifoliatus L. threeleaf soapberry <i>Cercospora sapindi-emarginati</i>	Shorea sp. shorea <i>Corticium salmonicolor</i>
Sapium aucuparium Jacq. var. salicifolium H. B. K. _____ <i>Cercospora sapiicola</i>	Shorea javanica Koord. & Valet. _____ <i>Agrobacterium tumefaciens</i>
Sapium japonicum (Sieb. & Zucc.) Pax & K. Hoffm. Japanese sapium <i>Helicobasidium mompa</i>	Shorea polysperma (Blanco) Merr. tangile <i>Asterinella luzonensis</i>
Saurauja oldhamii Hemsl. _____ <i>Fomes lamaoensis</i>	Shorea robusta Gaertn. f. sal <i>Corticium repens</i> <i>Fomes badius</i> <i>F. caryophylli</i> <i>F. fastuosus</i> <i>F. lamaoensis</i> <i>F. ribis</i> <i>F. robiniae</i> <i>F. senec</i> <i>F. tricolor</i> <i>Ganoderma applanatum</i> <i>G. lucidum</i> <i>Hexagonia sulcata</i> <i>Hymenochaete rubiginosa</i> <i>Macrophoma shoreae</i> <i>Polyporus adustus</i> <i>P. gilvus</i> <i>P. shoreae</i> <i>Schizophyllum commune</i> <i>Trametes cubensis</i> <i>T. incerta</i> <i>Xylaria polymorpha</i>
Schinus dependens Orteg. Peru peppertree <i>Trametes trogii</i>	Shorea talura Roxb. _____ <i>Asterina pleuriporus</i> <i>Cercospora shoreae</i>
Schinus molle L. peppertree <i>Botryosphaeria ribis</i> var. chromogena <i>Ganoderma applanatum</i> <i>Myxosporella schini</i> <i>Phytophthora cactorum</i> <i>P. parasitica</i>	Sickingia erythroxyton Willd. _____ <i>Angiopsora venezuelana</i>
Schleichera oleosa (Lour.) Merr. Malay lactree <i>Corticium salmonicolor</i> <i>Rosellinia bunodes</i>	Sideroxylon sp. _____ <i>Asterina diaphorella</i>
Schotia latifolia Jacq. elephant-hedge kafirbean-tree <i>Fomes robiniae</i>	Sideroxylon angustifolium Merr. _____ <i>Asterina laxiuscula</i>
Schrebera swietenoides Roxb. muccaady schrebera <i>Cercospora schreberae</i>	Sideroxylon apoensis Elmer _____ <i>Asterina laxiuscula</i>
Sciadopitys verticillata (Thunb.) Sieb. & Zucc. umbrella-pine <i>Fusarium oxysporum</i> var. aurantiacum	Sideroxylon ferrugineum Hook. & Arn. _____ <i>Asterina diaphorella</i> <i>A. laxiuscula</i>
Sclerocarya caffra Sond. kafir marvalonut <i>Cercospora caffra</i>	
Sceloparia mundtii (Arn.) Warb. _____ <i>Fomes robiniae</i> <i>Polyporus patouillardii</i>	
Scutia myrtina (Burm. f.) Kurz _____ <i>Elstneria bitancourtiana</i>	

<i>Calonectria rigidiuscula</i>	<i>Symplocos</i> sp.	sweetleaf
<i>Pellicularia rolfsii</i>	<i>Asterina indica</i>	
<i>Poria hypobrunnea</i>	<i>Symplocos theaeifolia</i> D. Don	—
<i>Sterculia rhinopetala</i> K. Schum.	<i>Exobasidium indicum</i>	
—	<i>Syncarpia glomerulifera</i> (Sm.) Nien- denzu	
Virus, swollen shoot	Burramurra turpentine-myrtle	
<i>Calonectria rigidiuscula</i>	<i>Armillaria mellea</i>	
<i>Sterculia tragacantha</i> Lindl.	<i>Tabebuia</i> sp.	—
Virus, swollen shoot	<i>Prospodium suppressum</i>	
<i>Calonectria rigidiuscula</i>	<i>Tabebuia haemantha</i> (Bert.) DC.	—
<i>Stereospermum acuminatissimum</i> K. Schum.		
padritree	<i>Mycosphaerella tabebuiae</i>	
<i>Phragmidiella africana</i>	<i>Tabebuia heterophylla</i> (DC.) Britton	—
<i>Stereospermum chelonoides</i> (L. f.) DC.		
—	<i>Physalospora tabebuiae</i>	
<i>Uredo stereospermi</i>	<i>Tabebuia rosea</i> (Bertol.) DC.	—
<i>Stereospermum junthianum</i> Cham.	<i>Aecidium simplicius</i>	
—	<i>Cercospora jahnii</i>	
<i>Phragmidiella africana</i>	<i>Glomerella cingulata</i>	
<i>Stereospermum suaveolens</i> (Roxb.) DC.	<i>Tabebuia serratifolia</i> (Vahl) Nicholson yellowpoui	
<i>Mehtamyces stereospermi</i>	<i>Cercospora stenolobitcola</i>	
<i>Stranvaesia nussia</i> (D. Don) Decne.	<i>Tabernaemontana</i> sp.	
Himalayan stransvaesia	tabernaemontana	
<i>Aecidium stranvaesiae</i>	<i>Cercospora tabernaemontanae</i>	
<i>Styrax benzoin</i> Dry.	<i>Puccinia engleriana</i>	
Sumatra snowbell	<i>Tabernaemontana amygdalifolia</i> Jacq.	—
<i>Fomes lamaoensis</i>		
<i>Styrax japonica</i> Sieb. & Zucc.	<i>Aecidium ochraceum</i>	
Japanese snowbell	<i>Tabernaemontana coronaria</i> Willd.	
<i>Cercospora fukuokaensis</i>	crape-jasmine	
<i>Microsphaera alni</i>	<i>Corticium salmonicolor</i>	
<i>Pucciniastrum styracinum</i>	<i>Tabernaemontana divaricata</i> R. Br.	—
<i>Styrax leprosa</i> Hook. & Arn.		
<i>Asterostomella dispar</i>	<i>Uredo manilensis</i>	
<i>Styrax obassia</i> Sieb. & Zucc.	<i>Tabernaemontana heyneana</i> Wall.	—
fragrant snowbell		
<i>Daedalea unicolor</i>	<i>Puccinia engleriana</i>	
<i>Pucciniastrum styracinum</i>	<i>Tabernaemontana holstii</i> K. Schum.	—
<i>Styrax shiraiana</i> Makino		
strigila snowbell	<i>Dothiorella holstii</i>	
<i>Helicobasidium mompa</i>	<i>Tabernaemontana pandacaqui</i> Poir.	—
<i>Swietenia macrophylla</i> King		
Honduras mahogany	<i>Cercospora tabernaemontanae</i>	
<i>Corticium salmonicolor</i>	<i>Fomes pectinatus</i>	
<i>Fomes lamaoensis</i>	<i>Puccinia engleriana</i>	
<i>Sclerotium delphinii</i>	<i>Tabernaemontana polygama</i> Blanco	—
<i>Swietenia mahagoni</i> Jacq.		
West Indies mahogany	<i>Uredo manilensis</i>	
<i>Cercospora subsessilis</i>	<i>Tabernaemontana sphaerocarpa</i> Blume	—
<i>Corticium salmonicolor</i>		
<i>Fomes lamaoensis</i>	<i>Fomes pectinatus</i>	
<i>Pellicularia rolfsii</i>		
<i>Phyllosticta swietenia</i>		

Talauma villariana Rolfe	_____	Terminalia catappa L.	
<i>Meliola diplochaete</i>		tropical Indian-almond	
Talisia esculenta (St. Hil.) Radlk.	_____	<i>Cercospora catappae</i>	
<i>Elsinoë talisiae</i>		<i>C. geraisensis</i>	
Tamarindus indica L.	tamarind	<i>Pellicularia rolfsii</i>	
<i>Corticium salmonicolor</i>		<i>Polyporus gilvus</i>	
<i>Fomes annularis</i>		<i>Ramularia catappae</i>	
<i>Ganoderma lucidum</i>		<i>Sphaceloma terminaliae</i>	
Tamarix gallica L.	French tamarisk	Terminalia hylobates Eichl.	_____
<i>Botryosphaeria tamaricis</i>		<i>Uredo terminaliae</i>	
Taxus sp.	yew	Terminalia tomentosa Wight & Arn.	
<i>Cryptocline taxicola</i>		woolly terminalia	
<i>Polyporus squamosus</i>		<i>Corticium repens</i>	
Taxus baccata L.	English yew	<i>Fomes robiniae</i>	
<i>Cryptocline taxicola</i>		Tetrapanax papyriferus (Hook.) K.	
<i>Ganoderma lucidum</i>		Koch	ricepaper-plant
<i>Physalospora gregaria</i> var. <i>foliorum</i>		<i>Aecidium fatsiae</i>	
<i>P. gregaria</i> f. <i>tazi</i>		Tetrazygia elaeagnoides (Sw.) DC.	_____
<i>Phytophthora cinnamomi</i>		<i>Asterina dilabens</i>	
<i>Polyporus squamosus</i>		<i>Bagnisiopsis peribebuyensis</i>	
<i>P. sulphureus</i>		Theobroma bicolor Humb. & Bonpl.	
<i>Sphaerulina taxi</i>		Nicaragua chocolate-tree	
Tectona grandis L. f.	teak	Virus, swollen shoot	
<i>Pseudomonas solanacearum</i>		<i>Marasmius perniciosus</i>	
<i>P. tectonae</i>		Theobroma cacao L.	cacao
<i>Xanthomonas melhusi</i>		Virus, red mottle	
<i>Armillaria mellea</i>		Virus, swollen shoot	
<i>Cercospora tectonae</i>		<i>Agrobacterium tumefaciens</i>	
<i>Chaonia tectonae</i>		<i>Armillaria mellea</i>	
<i>Corticium salmonicolor</i>		<i>Calonectria rigidiuscula</i>	
<i>Fomes lamaoensis</i>		<i>Calostilbe striispora</i>	
<i>Helicobasidium compactum</i>		<i>Ceratocystis fimbriata</i>	
<i>Nectria haematococcus</i>		<i>C. paradoxa</i>	
<i>Olivea tectonae</i>		<i>Choanephora cucurbitarum</i>	
<i>Phyllactinia guttata</i>		<i>Colletotrichum gloeosporioides</i>	
<i>Phyllosticta tectonae</i>		<i>Corticium salmonicolor</i>	
<i>Uncinula tectonae</i>		<i>Eutypa erumpens</i>	
<i>Uredo tectonae</i>		<i>Fomes lamaoensis</i>	
<i>Xylaria thwaitesii</i>		<i>F. lignosus</i>	
Terminalia sp.	terminalia	<i>Fusarium javanicum</i>	
<i>Armillaria mellea</i>		<i>Ganoderma pseudoferreum</i>	
Terminalia arjuna Wight & Arn.		<i>Glomerella cingulata</i>	
Arjan terminalia		<i>Helicobasidium longisporium</i>	
<i>Armillaria mellea</i>		<i>Irenopsis guianensis</i>	
Terminalia baumii Engl. & Gllg	_____	<i>Macrophomina phaseoli</i>	
<i>Phyllosticta terminaliae</i>		<i>Marasmius equicrinis</i>	
Terminalia bellerica Roxb.		<i>M. perniciosus</i>	
belleric terminalia		<i>M. scandens</i>	
<i>Aecidium terminaliae</i>		<i>Meliola guianensis</i>	
<i>Corticium repens</i>		<i>M. theobromae</i>	
<i>Fomes robiniae</i>		<i>Pellicularia filamentosa</i>	
<i>Sphaceloma terminaliae</i>		<i>P. koleroga</i>	
		<i>Phyllosticta theobromae</i>	

<i>Physalospora rhodina</i>		<i>Nectria ditissima</i>	
<i>Phytophthora cactorum</i>		<i>N. galligena</i>	
<i>P. palmivora</i>		<i>Phyllosticta tiliae</i>	
<i>Polyporus zonalis</i>		<i>Polyporus squamosus</i>	
<i>Poria hypobrunnea</i>		<i>Steccherinum septentrionale</i>	
<i>Ramularia necator</i>		Tilia americana L.	
<i>Rosellinia arcuata</i>			American basswood
<i>R. bunodes</i>		Virus, little leaf	
<i>R. paraguayensis</i>		Tilia amurensis Rupr.	Amur linden
<i>R. pepo</i>		<i>Pucciniastrum tiliae</i>	
<i>Thyridaria tarda</i>		Tilia cordata Mill.	littleleaf linden
<i>Trachysphaera fructigena</i>		Virus, little leaf	
<i>Ustulina deusta</i>		Virus, mosaic	
Theobroma grandiflora (Willd.) K.		<i>Asteroma tiliae</i>	
Schum.	—	<i>Caliciopsis tiliae</i>	
Virus, swollen shoot		<i>Cercospora microsora</i>	
<i>Marasmius perniciosus</i>		<i>Discula quercina</i>	
Theobroma pentagona Bernoulli		<i>Fomes connatus</i>	
	—	<i>Nectria ditissima</i>	
<i>Marasmius perniciosus</i>		<i>Phyllosticta tiliae</i>	
Thouinidium decandrum (Humb. &		<i>Placosphaeria tiliae</i>	
Bonpl.) Radlk.	—	<i>Pyrenochaeta filarszkyi</i>	
<i>Skierka holwayi</i>		<i>Verticillium albo-atrum</i>	
Thuja sp.	arborvitae	Tilia dasystyla Stev.	Caucasian linden
<i>Phomopsis juniperovora</i>		<i>Ascochyta tiliae</i>	
<i>Phytophthora cinnamomi</i>		<i>Cercospora microsora</i>	
Thuja koraiensis Nakai		Tilia × euchlora K. Koch	
	Korean arborvitae		Crimean linden
<i>Armillaria mellea</i>		<i>Verticillium albo-atrum</i>	
Thuja occidentalis L.		Tilia × europaea L.	European linden
	northern white-cedar	<i>Cercospora microsora</i>	
<i>Oeratocystis piceae</i>		<i>Discula quercina</i>	
Thuja orientalis L.	oriental arborvitae	<i>Elsinoë tiliae</i>	
<i>Cladosporium herbarum</i>		<i>Fomes ignarius</i>	
<i>Diplodia pinea</i>		<i>Ganoderma applanatum</i>	
<i>Fusarium oxysporum</i> var. <i>aurantia-</i>		<i>Nectria cinnabarina</i>	
<i>cum</i>		<i>N. coccinea</i>	
<i>Pestalotia funerea</i>		<i>Phyllosticta tiliae</i>	
Thuja standishii (Gord.) Carr.		<i>Polyporus dryadeus</i>	
	Japanese arborvitae	<i>P. squamosus</i>	
<i>Caeoma deformans</i>		<i>Ustulina deusta</i>	
<i>Pestalotia funerea</i>		Tilia japonica (Miq.) Simonk.	
Thujopsis dolabrata (L. f.) Sieb. &			Japanese linden
Zucc.	hiba false arborvitae	<i>Ganoderma applanatum</i>	
<i>Caeoma deformans</i>		<i>Pucciniastrum tiliae</i>	
<i>Fomes robustus</i>		Tilia mandshurica Rupr. & Maxim.	
<i>Hysterium thujopsidis</i>			Manchurian linden
Tilia sp.	basswood; linden	<i>Pucciniastrum tiliae</i>	
<i>Cercospora microsora</i>		Tilia platyphyllos Scop.	bigleaf linden
<i>Collybia velutipes</i>		Virus, little leaf	
<i>Discula quercina</i>		<i>Ascochyta tiliae</i>	
<i>Fomes connatus</i>		<i>Cercospora microsora</i>	
<i>F. fomentarius</i>		<i>Nectria cinnabarina</i>	
<i>Ganoderma applanatum</i>		<i>Phyllosticta tiliae</i>	
<i>Mycosphaerella maculiformis</i>			

Tilia tomentosa Moench	silver linden	Tsuga sieboldii Carr.	Siebold hemlock
<i>Cercospora microsora</i>		<i>Fomes pinicola</i>	
<i>Verticillium albo-atrum</i>		<i>Phacidiopycnis pseudotsugae</i>	
Tilia tuan Szyszyl.	tuan linden	<i>Poria tsugina</i>	
<i>Pucciniastrum tiliae</i>		Tsuga yunnanensis (Franch.) Pritz.	Yunnan hemlock
Tipuana tipu (Benth.) Kuntze	common tipu-tree	<i>Chrysomyxa tsugae-yunnanensis</i>	
<i>Ganoderma lucidum</i>		<i>Fomes pini</i>	
Toona ciliata M. Roem.	Burma toon	Ulmus sp.	elm
<i>Armillaria mellea</i>		Virus, little leaf	
<i>Ganoderma applanatum</i>		Virus, mosaic	
<i>G. lucidum</i>		<i>Pseudomonas lignicola</i>	
<i>Polyporus zonalis</i>		<i>Armillaria mellea</i>	
Toona serrata M. Roem.	Himalaya toon	<i>Ceratocystis ulmi</i>	
<i>Nyssopsora cedrelae</i>		<i>Collybia velutipes</i>	
<i>Uromyces cedrelae</i>		<i>Cytospora ambiens</i>	
Toona sinensis M. Roem.	Chinese toon	<i>Diplodia melaena</i>	
<i>Diaporthe oncostoma</i>		<i>Eosporium ulmi</i>	
<i>Nyssopsora cedrelae</i>		<i>Fistulina hepatica</i>	
<i>Pestalotia japonica</i>		<i>Fomes annularis</i>	
<i>Phakopsora cheoana</i>		<i>F. connatus</i>	
<i>Phyllactinia guttata</i>		<i>F. fomentarius</i>	
<i>Triphragmium cedrelae</i>		<i>F. fraxineus</i>	
<i>Uncinula delavayi</i>		<i>F. igniarius</i>	
Toona sureni (Blume) Merr.	_____	<i>F. ribis</i>	
<i>Ganoderma pseudoferreum</i>		<i>F. ulmarius</i>	
Torreya nucifera (L.) Sieb. & Zucc.	Japanese torreyia	<i>Ganoderma applanatum</i>	
<i>Helicobasidium mompa</i>		<i>G. lucidum</i>	
Trattinickia aspera (Standl.) Swart	_____	<i>Mycosphaerella maculiformis</i>	
<i>Erikssonina protii</i>		<i>M. ulmi</i>	
Trichilia emetica Vahl	Mafura bitterwood	<i>Nectria coccinea</i>	
<i>Campsotrichum cladosporioides</i>		<i>Phyllosticta bellunensis</i>	
Trichilia pallida Sw.	_____	<i>Pleurotus ulmarius</i>	
<i>Uredo trichiliae</i>		<i>Polyporus hispidus</i>	
Triplochiton scleroxylon K. Schum.	_____	<i>P. litschaueri</i>	
<i>Calonectria rigidiuscula</i>		<i>P. schweinitzii</i>	
Tsuga sp.	hemlock	<i>P. squamosus</i>	
<i>Polyporus sulphureus</i>		<i>P. zonatus</i>	
Tsuga chinensis (Franch.) Pritz.	Chinese hemlock	<i>Steccherinum septentrionale</i>	
<i>Fomes pini</i>		<i>Ustulina deusta</i>	
Tsuga diversifolia (Maxim.) Mast.	_____	<i>Verticillium albo-atrum</i>	
<i>Echinodontium tinctorium</i>		Ulmus buisman ?	_____
<i>Poria subacida</i>		<i>Ceratocystis ulmi</i>	
<i>P. tsugina</i>		Ulmus carpinifolia Gleditsch	smoothleaf elm
<i>P. weirii</i>		<i>Asteroma ulmi</i>	
		<i>Ceratocystis ulmi</i>	
		<i>Nectria cinnabarina</i>	
		<i>Taphrina ulmi</i>	
		Ulmus carpinifolia var. <i>italica</i> (Henry)	
		Rehd.	Italian smoothleaf elm
		<i>Ceratocystis ulmi</i>	

Ulmus carpinifolia f. propendens (Schneid.) Rehd. ———	<i>Phyllosticta bellunensis</i>
<i>Ceratocystis ulmi</i>	<i>Steccherinum septentrionale</i>
Ulmus carpinifolia f. sarniensis (Loud.) Rehd.	<i>Taphrina ulmi</i>
Sarnia smoothleaf elm	Ulmus parvifolia Jacq. Chinese elm
<i>Ceratocystis ulmi</i>	<i>Gnomonia oharana</i>
<i>Nectria cinnabarina</i>	<i>Uncinula clandestina</i>
Ulmus carpinifolia var. umbraculifera (Trautv.) Rehd. ———	Ulmus procera Salisb. English elm
<i>Nectria cinnabarina</i>	<i>Asteroma ulmi</i>
Ulmus carpinifolia f. wredei (Juehlke) Rehd. ———	<i>Ceratocystis ulmi</i>
<i>Ceratocystis ulmi</i>	<i>Phyllosticta ulmicola</i>
Ulmus glabra Huds. Scotch elm	<i>Uncinula clandestina</i>
<i>Asteroma ulmi</i>	<i>Ustulina deusta</i>
<i>Ceratocystis ulmi</i>	Ulmus pumila L. Siberian elm
<i>Cucurbitaria naucosa</i>	<i>Ceratocystis ulmi</i>
<i>Cytospora ambiens</i>	<i>Cercospora sphaeriaeformis</i>
<i>Diplodia melaena</i>	<i>Discula quercina</i>
<i>Fomes annosus</i>	<i>Gnomonia oharana</i>
<i>F. connatus</i>	<i>Helicobasidium mompa</i>
<i>F. ignarius</i>	<i>Nectria cinnabarina</i>
<i>Mycosphaerella ulmi</i>	Ulmus rubra Mühl. slippery elm
<i>Nectria ditissima</i>	<i>Cercospora ulmicola</i>
<i>Physalospora mutila</i>	Ulmus wallichii Planch. Himalayan elm
<i>Polyporus squamosus</i>	<i>Fomes conchatus</i>
<i>Taphrina ulmi</i>	Virgilia capensis Lam. lilac virgilia
<i>Verticillium albo-atrum</i>	<i>Fomes ulmarius</i>
<i>V. dahliae</i>	Wallaceodendron celebicum Koord. Celebes wallacetree
Ulmus × hollandica Mill. Dutch elm	<i>Ganoderma lucidum</i>
<i>Ceratocystis ulmi</i>	Washingtonia filifera (Linden) H. Wendl. California washingtonia
<i>Nectria cinnabarina</i>	<i>Diplodia epicocos</i>
Ulmus × hollandica var. belgica (Burgsd.) Rehd. ———	Widdringtonia whytei Rendle Mlanji widdringtonia
<i>Ceratocystis ulmi</i>	<i>Armillaria mellea</i>
<i>Pythium intermedium</i>	Xylia xylocarpa Taub. Burma pyingado
Ulmus × hollandica var. vegeta Rehd. —————	<i>Fomes pomaceus</i>
<i>Ceratocystis ulmi</i>	Xylopia sp. ———
Ulmus japonica (Rehd.) Sarg. Japanese elm	<i>Dasyscypha gregaria</i>
<i>Gnomonia oharana</i>	<i>Fusarium tumidum</i>
<i>Polyporus hispidus</i>	Xylopia frutescens Aubl. ———
<i>Uncinula clandestina</i>	<i>Dasyscypha gregaria</i>
Ulmus laciniata (Trautv.) Mayr var. nikkoensis Rehd. Nikko Manchurian elm	Xylopia grandiflora St. Hll. ———
<i>Ceratocystis ulmi</i>	<i>Dasyscypha gregaria</i>
Ulmus laevis Pall. Russian elm	Xymalos monospora (Harv.) Baill. ———
<i>Ceratocystis ulmi</i>	<i>Fomes robiniae</i>
<i>Fomes connatus</i>	<i>F. robustus</i>
<i>Mycosphaerella ulmi</i>	Zanthoxylum sp. prickly-ash
	<i>Aecidium rickii</i>
	<i>A. spissum</i>

Zanthoxylum sp.	prickly-ash	Zanthoxylum rhoifolium Lam. ———
(Continued)		<i>Aecidium zanthoxylinum</i>
<i>A. zanthoxylinum</i>		Zanthoxylum riedelianum Engl. ———
<i>Helicobasidium tanakae</i>		<i>Sphaceloma fagarae</i>
Zanthoxylum ailanthoides Sieb. & Zucc.		Zanthoxylum simulans Hance
ailanthus prickly-ash		flatspine prickly-ash
<i>Cercospora fagarae</i>		<i>Aecidium zanthoxyli-schinifolii</i>
Zanthoxylum alatum Roxb.		Zelkova sp. ———
wingleaf prickly-ash		<i>Pseudomonas lignicola</i>
<i>Aecidium zanthoxyli-schinifolii</i>		Zelkova serrata (Thunb.) Makino
Zanthoxylum coco Gill. ———		Japanese zelkova
<i>Phytophthora citrophthora</i>		<i>Cercospora zelkowae</i>
<i>Sphaceloma fagarae</i>		<i>Helicobasidium mompa</i>
Zanthoxylum hyemale St. Hil. ———		<i>Septoria abeliceae</i>
<i>Sphaceloma fagarae</i>		<i>Uncinula clintonii</i>
Zanthoxylum melanorachis (Hoyle)		Ziziphus mucronata Willd. ———
Little ———		<i>Ganoderma lucidum</i>
<i>Fomes lignosus</i>		Ziziphus oenoplia Mill. ———
Zanthoxylum piperitum (L.) DC.		Virus, Sandal spike
Japanese prickly-ash		
<i>Aecidium zanthoxyli-schinifolii</i>		

FOREIGN DISEASES POTENTIALLY MOST DANGEROUS TO NORTH AMERICAN FORESTS

Some of the most destructive forest tree diseases in North America were introduced from abroad—white pine blister rust, chestnut blight, and elm wilt, for example. One of the most effective ways to prevent similar importations in the future is to direct attention to those diseases in other continents that, on the basis of available information, appear to have an especially high capacity for damage should they become established in North American forests.

It is obviously impossible to predict what specific pathogens will do if and when introduced on new hosts or into new and different environments. Some that are very serious on one continent may be relatively harmless on another, and some that are held in check by biotic factors in their native locale may, when freed of these natural controls, quickly become epidemic. It is possible, nevertheless, to indicate a few organisms that, because of their known pathogenicity and the importance of hosts known to be susceptible, merit special efforts to exclude them. Diseases yet unknown or unreported may prove equally or more important, but the following known diseases are considered especially serious threats to North American forests. They are listed in the order in which they appear in the preceding text.

Viruses

Virus, Mosaic

conifer mosaic

A mosaic disease of spruces and pines, believed to be virus caused, has been reported in Czechoslovakia. So far as known, little or no research has been done on it. Affected trees have mottled yellowish needles, especially where *Chermes* develop abundantly.

Bacteria

Erwinia salicis

willow watermark disease

The willow watermark disease of England appears, in early stages, to be similar to the wetwood of various species of conifers and hardwoods in American forests. It is more aggressive, however, and causes death of large trees. It should be rigidly excluded.

Pseudomonas rimaefaciens

poplar canker

[=*P. syringae* f. *populea*. See both *Pseudomonas rimaefaciens* and *Micrococcus populi* in section on Bacteria in text; work to clarify the identity and synonymy of the bacterium or bacteria causing poplar canker is continuing.]

This bacterial canker is the most serious disease of poplars in north-western Europe and Great Britain. Prior to their selection and

certification for resistance, it threatened commercial growing of poplars. No effort should be spared to prevent its international spread.

Pseudomonas saliciperda

willow wilt

A serious disease of willows in the Netherlands. Insect transmission is suspected but not proved. Use of infected cuttings must be avoided.

Pseudomonas savastanoi* var. *fraxini

ash canker

A nongirdling canker of stems and branches present only in Great Britain and central and southern Europe. Causes grain distortion and reduces quality of wood.

Xanthomonas acernea

maple leaf spot

A serious leaf, twig, and branch wilt of maple and buckeye in Japan.

Fungi

Acanthostigma parasiticum

blight

This fungus is reported only in a single American locality near Halifax, Nova Scotia; otherwise, in Europe and Japan. The needles of fir, spruce, and hemlock are attacked. A 100-year-old stand of *Abies alba* was badly damaged on the Danish island of Bornholm. Disease development is much favored by quiet moist air in dense stands and thickets.

Brunchorstia pini

dieback

Causes stem and branch cankers of hard pines in Turkey and Austria. Damage heavy in both young and old stands. Epidemics are apparently associated with droughts that reduce tree vigor.

Caeoma deformans

rust

Causes witches'-brooms of *Thuja* and *Thujopsis* in Japan. Capable of causing serious losses in forest nurseries, plantations, and natural stands.

Cenangium kazachstanicum

pine dieback

Known only in Russia where it has caused heavy losses in Scotch pine stands. All American hard pines may be susceptible.

Cercospora pini-densiflorae

pine leaf blight

A serious needle disease of hard pines in Japan and Formosa. Heavy infection kills seedlings.

Chrysomyxa abietis

spruce needle cushion rust

Common on spruce throughout northern Europe. Occasionally causes serious defoliation. Probably does not require an alternate host.

Chrysomyxa deformans

spruce twig and needle rust

Reported on spruce from India, Pakistan, and Siberia. Probably does not require an alternate host. This rust along with *Chrysomyxa abietis* could cause heavy losses in North American spruce forests.

Chrysomyxa himalensis **rhododendron-spruce needle rust**

This rust is considered to be the cause of occasional serious defoliation of spruce in India and Pakistan. It infects the petioles, lower midribs, and leaf blades of rhododendron and the needles of spruce.

Cronartium flaccidum **felt rust**

[= *Peridermium pini* var. *corticola*]

A needle and twig rust of hard pines throughout Europe and Asia, particularly serious on Scotch pine in Europe where it causes forking, stem distortion, and death of the leader or large part of the upper bole. Trees of all ages are affected. In northern Europe as high as 90 percent of the trees in a pure stand have been observed to be stagheaded from this disease. This rust fungus is particularly dangerous because it can spread directly from pine to pine.

Cronartium himalayense **pine-Swertia felt rust**

This rust of India and Pakistan, with *Pinus roxburghii* and *Swertia* spp. as alternate hosts, acts much as does *Cronartium ribicola* in North America. The pine host is a pitch pine as are our important southern species. Numerous *Swertia* species are widely distributed over the United States. If the species of *Swertia* and pitch pines found in this country should prove susceptible, introduction of this rust could be disastrous. (cf. Spaulding, Perley. A stem rust of *Pinus roxburghii* in India potentially dangerous to the United States. Plant Dis. Rptr. 36:159-161. 1952.)

Cronartium quercuum **Asian pine-oak blister rust**

This rust fungus, causing galls on hard pines in Asia, greatly resembles the American *Cronartium cerebrum*. Oaks are the principal alternate hosts of both species. *C. quercuum* is definitely known in China and Japan. Presumably the same species is the one found in Siberia, India, Korea, and Pakistan. A similar rust fungus is known in Europe.

Cucurbitaria piceae **spruce bud blight**

Spruce bud blight is widely distributed in central and western Europe on native spruce and on planted blue spruce from North America. Appreciable damage has been reported. This blight is potentially very destructive to our several widely distributed spruces.

Helicobasidium mompa **violet root rot**

This fungus, found in Japan, Formosa, and China, forms purple rhizomorphs on roots and bases of trees. A mycelial mat develops on the soil surface and upward on the stems of trees. This mat has a powdery-white surface until July when it turns brown. Leaves of diseased trees are smaller and fall prematurely, and the tree dies. This fungus attacks many food plants as well as woody-stemmed plants. It can live saprophytically in plant debris and is difficult to eliminate in regions newly infected.

Hypodermella sulcigena **leaf cast**

A leaf cast of pitch pines destructive over northern and central Europe and having high potential for damage in North America. It

forms elliptical to elongate black fruiting bodies on discolored areas of living green needles.

Melampsora pinitorqua

pine-poplar rust

This disease, locally called the pine twister, causes distortion of the juvenile shoots of hard pines in Europe, particularly *Pinus sylvestris*. Young pines are appreciably damaged. The alternate stage is on leaves of *Populus*, especially *P. tremula*.

Pestalotia populi-nigrae

shoot blight

Associated with severe wilt of current year shoots of *Populus nigra* planted as windbreaks and shelterbelts in Japan. The fungus spreads rapidly in stems, forming lesions, and often girdling and killing them. Losses may be heavy.

Phytophthora cambivora

root rot

Root rot, especially of chestnut, in Europe. Known as ink disease from the black exudate from cankered roots and bases of diseased trees. This fungi is distributed widely in chestnut-growing regions of Europe, and has killed many chestnut trees in Corsica and Coruna Provinces, Spain. It is also reported in Mauritius. In Europe it occurs also on beech, walnut, and oak. Might be serious on these commercially important genera in North America.

Poria rhizomorpha

root rot

Endemic in India and Pakistan on numerous broad-leaved trees, causing friable cubical rot. Forms extensive rhizomorphs extending as much as 100 feet from diseased to healthy trees. The fungus attacks at the base of the stem, girdles the tree, and quickly kills it. Infected soil or wood should not be moved into uninfected areas.

Pucciniastrum areolatum

cherry-spruce rust

Old World in distribution and endemic in Santo Domingo. Heteroecious, alternating between leaves of *Prunus* and green cone scales of *Picea*. Seeds of rusted spruce cones may be so aborted as to seriously reduce crop viability.

Rhizoctonia lamellifera

root rot

A fungus attacking many broad-leaved trees in Uganda and conifers in South Africa. This parasite occurs as fungus strands and webs largely buried in decayed roots or covering their surfaces, with no organized conks. The first symptoms are wilted and brown leaves, and are followed by staghead and death.

Rosellinia spp.

root rot

There are several species of *Rosellinia* not now known in North America that cause root rot of trees, mostly of younger ages. They look much alike and attack both conifers and broadleaves. All are favored by wet soils. Wilting, soon followed by death of the plant, is the chief signal of trouble. Dead roots have strands of mycelium between the bark and wood or on the outside of the bark. Small sclerotia form on the strands and finally small globular fruiting bodies.

Rosellinia arcuata kills numerous broad-leaved trees in Ceylon, India, Java, Sumatra, and the Gold Coast. *R. quercina* is known as a root rot of young broad-leaved trees in Japan and Europe, especially Denmark and England. *R. radiciperda* appears to be confined to New Zealand where it occurs on orchard trees, true firs, and native forest trees.

Scleroderris abietina

pine dieback

Distributed generally in Europe. It is associated with dieback of shoots and branches of *Pinus*, killing trees in severe outbreaks.

Sphaeropsis necatrix

pine cone blight

Damaging in Italy where it attacks young cones of *Pinus pinea* during May or June. Chestnut-colored lesions appear between adjacent cone scales. A day or two later one-third of the spotted cone may turn brown and the whole surface become affected; the seeds shrink and become wrinkled and dry. The fungus is favored by wet years and is worse on older trees.

Trichoscyphella willkommii

larch canker

[=*Dasyscypha willkommii*]

This fungus attacks only *Larix* spp. and *Pseudolarix amabilis*.

In North America the true larch canker has been known only in eastern Massachusetts. All known diseased trees have been destroyed. It is hoped that it has been eliminated. In Europe it is considered the worst enemy of larch.

In Denmark, the American *Larix occidentalis* is so susceptible that it should not be planted in that country. This may indicate special danger if the fungus ever reaches this tree within its native range.

