

V. DISEASES OF TREES AND SHRUBS

ABIES - Fir

Needle Blight (Rohmiellopsis bohemica Bub. & Kab.) was found causing considerable injury to A. balsamea in Richmond Co., N.S., and was also seen elsewhere in Cape Breton Island. This European disease was reported in Me., Mass. and N.Y. in 1933, but has not previously been reported from Canada. See Waterman and McKenzie, Phytopath. 23:108-109. 1933; Waterman and Aldrich, Plant Dis. Repr. 24:201-203. 1940. (Mildred K. Nobles; conf. Alma M. Waterman).

ACER - Maple

Leaf Spot (Cylindrosporium pennsylvanicum) caused slight damage to A. pennsylvanicum at Cape Split, Kings Co., N.S. (J.F. Hockey). Present in the herbarium from Ont., Que., and N.B.

Die Back (?Nectria sp.) caused moderate injury to a group of trees in York Co., N.B. (J.L. Howatt).

Leaf Spot (Phleospora canadensis) slightly infected A. spicatum at Clearwater Bay, Ont. (W.L. Gordon).

Powdery Mildew (Phyllactinia corylea) on A. rubrum was received from Mont Rolland, Que. (I.L. Conners).

Leaf Spot (Phyllosticta minutissima). A heavy general infection of A. spicatum occurred at Clearwater Bay, Ont. (W.L. Gordon).

Leaf Spot (Phyllosticta Negundinis and Septoria Negundinis). These two organisms were closely associated in a heavy infection of A. Negundo at Winnipeg, Man., in August (W.L. Gordon).

Wilt (Verticillium albo-atrum) affected a few trees of A. saccharum and A. pseudoplatanus at Ottawa, Ont., late in the season. Injury varied from killing of a single branch to death of the whole tree. Most cases were presumably long-standing infection with injury aggravated by severe drought (D.B.O. Savile).

AMELANCHIER

Black Leaf Curl (Apiosporina Collinsii) was heavy and general on A. alnifolia at Clearwater Bay, Ont. (W.L. Gordon).

Rust (Gymnosporangium clavipes) was sent in from near Vernon, B.C., on the fruit of A. sp. (I.L. Conners).

BETULA - Birch

Leaf Spot (Gloeosporium ?Betulae-papyriferae Sacc. & Dearn.). A moderate, widespread infection of B. papyrifera occurred at Clearwater Bay, Ont.; spores were 3-6 x 1.5 microns (W.L. Gordon). The relationships of the various species of Gloeosporium described on Betula require to be clarified by cultural studies.

Rust (?Melampsora sp.). On June 15 a pycnial infection was found at Fort Garry, Man., on a leaf of B. papyrifera; Betula has not been recorded as the aecial host of any rust (A.M. Brown). This material was finally collected by Mr. Brown, when it became apparent that no aecia were developing, and was sent to Ottawa; sections show that the pycnia tend to be flattened and that paraphyses, though present, are not strongly developed; the appearance of the pycnia, the abundant orange-yellow pigment, the mycelial habit, and the morphology of the haustoria leave no doubt that this is actually a rust; the form of the pycnia and the taxonomic position of the host suggest Melampsora or a related genus (I.L.C., D.B.O.S.).

Powdery Mildew (Phyllactinia corylea) slightly infected B. papyrifera at Clearwater Bay, Ont. (W.L. Gordon).

Leaf Spot (Phyllosticta Betulae). A moderate, general infection of B. papyrifera occurred at Clearwater Bay, Ont. (W.L. Gordon).

Die-Back (cause unknown). Most stands of yellow birch (B. lutea) of 60 years old or older are succumbing to die-back in N.B. As noted last year (P.D.S. 23:95), the bronze birch borer is often, but not always, associated with the trouble (J.L. Howatt). Die-back has been very destructive in P.E.I. and the fine birches seem to be headed for great reduction in population (R.R. Hurst).

CARAGANA

Leaf Spot (Septoria Caraganae) was light in hedges at Edmonton, Alta. (M.W.C.). It was moderate to severe at Brandon, extremely severe at Morden, and moderate at Winnipeg, Man., and was severe at Clearwater Bay, Ont., on C. arborescens (W.L. Gordon).

CORNUS - Dogwood

Powdery Mildew (Phyllactinia corylea) was general but caused slight damage to C. Nuttallii in N. Saanich Co., B.C. (W. Jones).

Mosaic (?virus). A few trees of C. Nuttallii in N. Saanich Co., B.C. showed chlorotic and somewhat distorted foliage, sometimes with splitting and necrotic spotting (W. Jones).

Blossom Blight (cause unknown). In a blossom blight of C. Nuttallii seen in Vancouver Island, B.C., the petals turned brown and were distorted. Where many blossoms were affected the ornamental value of the tree was greatly diminished. Phoma sp. was found in some blossoms (W. Jones).

CORYLUS - Filbert

Leaf Spot (Gloeosporium Coryli). A trace occurred on C. cornuta in the Arboretum, Ottawa, Ont., but none was seen on C. americana, C. Avellana or C. Avellana heterophylla (D.B.O. Savile).

Powdery Mildew (Phyllactinia corylea) was abundant on leaves of C. cornuta at Clearwater Bay, Ont. (W.L. Gordon).

COTONEASTER

Leaf Spot (Phyllosticta sanguinea Sacc.) moderately infected C. melanocarpa at Charleswood, Man.; spores 5-7.5 x 2.5 microns; first record in Canada (W.L. Gordon).

Dark Berry (Phytophthora Cactorum) was common on C. horizontalis in rock gardens in the Victoria and N. Saanich districts, B.C., causing moderate damage (W. Jones).

GRATAEGUS - Hawthorn

Rust (Gymnosporangium tubulatum Kern). A specimen was received from Grand Forks, B.C. (G.E. Woolliams, I.L. Connors).

DIERVILLA

Leaf Spot (Septoria Diervillae) was severe on D. Lonicera at Morden, Man., and was moderate but widespread at Clearwater Bay, Ont. (W.L. Gordon).

FRAXINUS - Ash

Powdery Mildew (Phyllactinia corylea) was very conspicuous on some trees of F. pennsylvanica at Ontario Agricultural College, Guelph, Ont. (J.E. Howitt).

Leaf Spot (Phyllosticta viridis) was heavy and widespread on F. pennsylvanica var. lanceolata at Winnipeg, Man.; the Piggotia stage was also present. Piggotia was also severe at Morden and moderate at Brandon (W.L. Gordon).

Rust (Puccinia sparganioides). Scattered infections were found on F. pennsylvanica var. lanceolata at Winnipeg, Man. (W.L. Gordon).

JUGLANS

Die-Back (Fusarium lateritium associated). This organism was isolated from beneath the bark of affected branches of J. regia on Vancouver Island, B.C. (Irene Mounce, W.L. Gordon).

LEDUM - Labrador Tea

Rust (Chrysomyxa ledicola). A light infection was present on a specimen of L. groenlandicum received from Gilbert Plains, Man.; see also Picea (W.L. Gordon).

LIRIODENDRON - Tulip Tree

Leaf Spot (Ecotstroma Liriodendri) greatly disfigured L. Tulipifera at Ontario Agricultural College, Guelph, Ont. (J.E. Howitt).

MALUS

Leaf Spot (Coniothyrium pirinum associated). A slight infection occurred on Malus baccata at Charleswood, Man. (W.L. Gordon).

Scab (Venturia inaequalis). A 10% infection on Betchel's Flowering Crab in Grantham Twp., Ont., caused spotting, yellowing and drop (G.C. Chamberlain).

PICEA - Spruce

Rust (Chrysomyxa ledicola). A moderate infection of P. glauca, with some defoliation occurred at Melfort, Sask. (P.M. Simmonds, W.L. Gordon). A specimen of P. glauca was received from Arborg, Man.; severe infection and damage were reported. This rust was common on P. pungens at Morden and Winnipeg, Man., and Dryden, Ont.; first record from Man. on this host (W.L. Gordon). It was abundant on P. glauca in Fenwick Co., N.S. (J.F. Hockey, I.L. Conners).

Needle Blight (Lophodermium Piceae (Fckl.) Hoehn.) was found on P. sitchensis in the Queen Charlotte Islands, B.C. Sterile material of L. filiforme Danker was also found on the same host (R.E. Foster, I.L. Conners; conf. E.K. Cash).

Rust (Pucciniastrum americanum) was found on P. glauca adjacent to a commercial raspberry plantation at Memramcook, Westmorland Co., N.B., on July 5 (S.F. Clarkson).

PINUS - Pine

Blister Rust (Cronartium ribicola) severely attacked P. strobus in Kings Co., P.E.I. (R.R. Hurst).

Needle Blight (Hypodermella montivaga (Petra) Dearn.). A specimen was received from near Field, B.C. This is the first Canadian collection of this fungus (J.E. Bier, I.L. Conners).

POPULUS - Poplar

Leaf Blight (Fusicladium radiosum) was found on P. tremuloides near Duncan, B.C. (R.E. Foster, I.L. Conners).

Leaf Blight (Linospora tetraspora) again severely infected P. tacamahaca in many sections of central Alta. (M.W.C.).

Leaf Spot (Marssonina Castagnei) was quite general in the region of Summerland, B.C., on P. tremuloides; it was severe on young trees, often causing premature death of the leaves (G.E. Woolliams). It was found on some leaves of the same host at Clearwater Bay, Ont., intermixed with Phyllosticta brunnea (W. L. Gordon).

Rust (Melampsora spp.). M. albertensis was quite general on P. tremuloides at Summerland, B.C. (G.E. Woolliams). M. medusae was severe on P. deltoides at Sanford and Winnipeg, Man. (W.L. Gordon). It should be emphasized that the report by Dr. J.E. Jacques in P.D.S. 23:98 refers to M. medusae rather than M. sp.

Leaf Spot (Phyllosticta brunnea). A moderate general infection occurred on P. tremuloides at Clearwater Bay, Ont. (W.L. Gordon).

Leaf Spot (Septoria populicola) slightly infected P. balsamifera at Gilbert Plains, Man. (W.L. Gordon).

Powdery Mildew (Uncinula Salicis) was general at Summerland, B.C., on P. tremuloides and P. trichocarpa, especially on young trees (G.E. Woolliams).

PRUNUS

Leaf Spot (Phyllosticta circumscissa). A slight general infection of Nanking cherry, P. tomentosa, was seen at Charleswood, Man. (W.L. Gordon).

Leaf Spot (Phyllosticta virginiana (Ell. & Hatsted) Tass) moderately infected dwarf Russian almond, P. nana, at Charleswood, Man. P. virginiana was slightly infected at Winnipeg and severely attacked at Clearwater Bay, Ont.; these are the first reports in the Survey; see also Plum and Sand Cherry (W.L. Gordon).

Leaf Curl (Taphrina Institiae). At Ponemah, Man., one branch of a tree of P. pennsylvanica was attacked in 1943; in 1944 the disease spread to other branches and to nearby trees; leaves of infected branches were severely damaged (W.L. Gordon).

QUERCUS - Oak

Leaf Spot (Marssonina Martini). A trace occurred on Q. macrocarpa at Winnipeg, Man. (W.L. Gordon).

Leaf Spot (Phyllosticta livida) moderately affected Q. macrocarpa at Winnipeg, Man. (W.L. Gordon).

Leaf Blister (Taphrina caerulegens). A moderate infection occurred on Q. macrocarpa at Beaverlodge, Alta. (G.B. Sanford).

RHAMNUS - Buckthorn

Leaf Spot (Phyllosticta Rhamni). A trace occurred on R. Frangula at Winnipeg, Man. (W.L. Gordon).

Rust (Puccinia coronata). A scattered infection occurred in one planting of R. cathartica at Winnipeg, Man. (W.L. Gordon).

SALIX - Willow

Blight (Fusicladium saliciperdum). Severe twig blight was seen at Whyccomagh, N.S., but the disease was not generally prevalent in the western part of the province (J.F. Hockey).

Anthraxnose (Gloeosporium Salicis) was severe on golden willow, S. alba var. vitellina, at Morden and Winnipeg, Man. It was also heavy on Salix sp. at the Forest Nursery Station, Shilo (W.L. Gordon).

Powdery Mildew (Uncinula Salicis) was general on Salix spp. throughout the Okanagan Valley, B.C. (G.E. Woolliams).

SORBUS - Mountain Ash

Leaf Spot (Coniothyrium ?pirinum). A slight, scattered infection occurred on S. Aucuparia at Winnipeg, Man.; spores were 5-7.5 x 2.5-3.5 microns (W.L. Gordon).

Rust (Gymnosporangium spp.). A trace of G. Juniperi was found at Brandon, Man., and a heavy infection at Clearwater Bay, Ont., on S. americana planted for ornament (W.L. Gordon). Fruit of Sorbus sp. was heavily infected by G. clavipes at Lunenburg, N.S.; pycnia of G. ?Juniperi were present on the leaves (J.F. Hockey, I.L. Connors).

TSUGA - Hemlock

Rust (Uredo Hölwayi). A trace was found on Ts. heterophylla near Vernon, B.C. (I.L. Connors).

ULMUS - Elm

Dutch Elm Disease (Ceratostomella Ulmi (Schwarz) Buisman). The occurrence of Dutch elm disease in Canada was established late in 1944 when Dr. Rene Pomerleau, Quebec Dept. of Lands and Forests, received specimens from St. Ours, near Sorel, Richelieu Co., Que., that finally proved to be infected by the causal fungus. Subsequent scouting under the direction of Dr. Pomerleau indicated that the disease was present in nine localities in the region of Lake St. Peter, an expansion of the St. Lawrence about 50 miles below Montreal. The infected area was found to be about 40 miles long and, although only 28 diseased trees were actually located, it is believed that this number will be greatly increased when intensive scouting is carried out at a season more favourable than late autumn.

In the United States both the European elm bark beetle (Scolytus multistriatus Marsh.) and the native elm bark beetle (Hylurgopinus rufipes Eichh.) act as vectors, but the latter is a much less effective carrier of the fungus than the former. As far as is known at present only the native bark beetle occurs in Que., which gives rise to the hope that it may be possible to eradicate the disease in that province. The history of attempts to eradicate exotic tree diseases in North America is not encouraging, but it may at least be possible to confine it to a comparatively small area if future work does not prove it to be more widespread than it is now known to be. It is not known how long the disease has been present in this country, nor how it was introduced, although there are indications that it came directly from Europe rather than from the United States (A.W. McCallum).

Black Spot (Gnomonia ulmea) was heavy on some plants in a hedge of U. pumila at Winnipeg, Man., but absent from others. A slight infection occurred at Morden. Infection on U. americana was moderate and general at Winnipeg and Morden (W.L. Gordon).

Coral Spot (Nectria cinnabarina) continued to progress in hedges of U. pumila at the Botanical Garden, Montreal, Que., in spite of careful attention, and many trees were killed (J.E. Jacques).

VIBURNUM

Leaf Scorch (?high temperature and drought). In mid-August an unusual form of leaf injury occurred on Viburnum spp. in the Arboretum, Ottawa, Ont.; it was severe on V. Sargentii, moderate on V. Sargentii var. calvescens, and nil to a trace on others. For several days the injured leaves did not fall or curl although up to 3/4 of the blade area had been killed as though by steam. This is thought to have been direct heat injury during the first two weeks of August when shade temperatures up to 100° F. occurred at a time during which soil moisture may have been too low to allow adequate evaporative cooling of the leaves (D.B.O. Savile).

SHADE TREES

Drought Injury. By Aug. 20 at Ottawa, Ont., Juglans and Aesculus were 50 to 90% defoliated; Betula, trace to 75%; Ulmus, 10-25%. Acer was generally unaffected except for a few trees thought to have been infected by Verticillium. Almost all trees shed some leaves in Aug., but other genera were not seriously affected except in unfavourable situations (D.B. Savile).

INSECTS

Empusa sp. killed an estimated 20% of aphids throughout N.B. (J.L. Howatt). It killed great numbers of aphids in potato plots in P.E.I. (R.R. Hurst).

Bacterial disease of potato beetles. Potato beetles were scarce in many sections of N.B. In Albert Co. the beetles were uncommon and some of the first seen were lethargic; a bacterium isolated from these insects killed healthy beetles within 24 hrs. of inoculation (J.L. Howatt).

Virus wilt of tent caterpillars killed about 0.5% of these insects attacking poplar in Victoria Co., N.B. (J.L. Howatt).